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The Index to the present volume includes an index to the Institute's monthly publication MAN for the year of issue 1924.

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JOURNAL

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MINUTES OF THE ANNUAL GENERAL MEETING,

TUESDAY, JANUARY 27TH, 1925,

HELD IN THE LONDON SCHOOL OF ECONOMICS,

Prof. C. G. SELIGMAN, F.R.S., *President, in the Chair.*

The Minutes of the last Annual General Meeting were read and accepted.

The PRESIDENT appointed Mr. RAY and Mr. W. B. THOMPSON Scrutineers, and declared the ballot open.

The HON. SECRETARY read the Report of the Council for 1924, which was accepted.

The HON. TREASURER read the Financial Report for 1924, and this was also accepted.

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The PRESIDENT then read his Address on "Some Little-Known Tribes of the Southern Sudan."

The SCRUTINEERS delivered their Report, and the following were declared duly elected as Officers and Council for 1925–26 :—

President.—Prof. C. G. Seligman, M.D., F.R.S.

Vice-Presidents.

Capt. T. A. Joyce, M.A., O.B.E.
H. J. E. Peake, F.S.A.
R. W. Williamson, M.Sc.

Hon. Secretary.—E. N. Fallaize, B.A.

Hon. Treasurer.—F. C. Shrubsall, M.A., M.D.

Hon. Editor.—H. S. Harrison, D.Sc.

Council.

H. J. Braunholtz, M.A.
L. H. Dudley Buxton, M.A.
L. C. G. Clarke.
Miss M. E. Durham.
Capt. M. W. Hilton-Simpson, F.R.G.S.
C. W. Hobley, C.M.G.
B. Malinowski, D.Sc.
R. R. Marett, M.A., D.Sc.
J. Reid Moir.
Miss M. A. Murray.
C. S. Myers, M.A., M.D.
Prof. J. L. Myres, M.A., D.Sc., F.S.A., F.R.G.S.
Percy Newberry, M.A., O.B.E.
Prof. F. G. Parsons, F.R.C.S.
W. J. Perry, M.A.
W. P. Pycraft, A.L.S.
Prof. R. W. Reid, M.D.
F. J. Richards, M.A.
W. W. Skeat, M.A.
E. Torday.

A hearty vote of thanks to the PRESIDENT for his Address was proposed by Prof J. L. MYRES, who asked in the name of the Institute that the PRESIDENT would allow it to be published in the Institute's *Journal*. This was seconded by Prof. Sir ARTHUR KEITH and was carried by acclamation.

The Institute then adjourned.

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REPORT OF THE COUNCIL FOR THE YEAR 1924.

Fellows.

The Council is happy to report that in the year under review the additions to the membership of the Institute continue to be satisfactory, the total number of elections being 62, the net increase, after deductions due to death or resignation, being 34. The detailed figures are as follows :—

—	Total Jan. 1st, 1924.	Loss by death or resignation.	Since elected.	Total Jan. 1st, 1925.
Honorary Fellows	39	6	3	36
Local Correspondents	18	—	—	18
Deduct Ordinary Fellows ...	3			3
	— 15	—	—	— 15
Affiliated Societies	4	—	—	4
Ordinary Fellows :—				
Compounding	51	4	2	49
Subscribing	487	20	57	524
	596	30	62	628

The Council regrets to record the death of the following Fellows :—

F. Atlay (elected 1907); Lord Abercromby (1883; Obituary notice, *Man*, xxiv, No. 120); N. Annandale (1902); H. A. Rigg (1893); Prince Roland Bonaparte (1885); Prof. Anuchin (1892); Prof. T. Witton Davies (1893); Dr. W. H. Furness (1902); Dr. Adrien Guébhard (1916); de Barri Crawshay, O.B.E. (1921); Dr. E. Chantre (1876; Obituary notice, *Man*, xxiv); David MacRitchie (1885).

The Council would wish to offer the hearty congratulations of the Institute to Sir James Frazer, F.R.S., F.B.A., upon whom His Majesty the King has been graciously pleased to confer the Order of Merit.

Meetings of the Institute.

Fourteen Ordinary Meetings of the Institute have been held in 1924, as against 19 in 1923. The Huxley Memorial Lecture was delivered in the rooms of the Royal Society, on November 25th, by Prof. Dr. Réné Verneau, to whom the Huxley Memorial Medal was presented at the conclusion of the Lecture.

The Council has to thank the President and Council of the Royal Society for placing its rooms at the disposal of the Institute for the purpose of its evening meetings when occasion has required.

Library.

Accessions to the Library in 1924 numbered 333, of which 198 are bound volumes, as against 261 and 157 respectively in 1923.

In the past the work of the Institute has been hampered by the fact that its funds have not been adequate to allow for the purchase of more than a few books in each year to add to the Library. In response to an application from the Council, the Trustees of the Carnegie United Kingdom Trust have now made a liberal grant in aid of the Institute's Library. This grant is conditional on the co-operation of the Institute, through the Central Library for Students, in the Linked Library Scheme of the Trust. By the aid of this grant it is intended that the more important gaps in the Institute's works of reference may be filled at an early date.

The Council would wish to express the thanks of the Institute to the Trustees for their generous assistance.

Publications.

During the year two parts of the *Journal* have been published, vol. liii (ii) and liv (i). Office sales to date are 90 and 136 respectively, as against 115 and 121 of the two preceding parts at the corresponding date last year.

Twelve monthly numbers of *Man* were issued in 1924, of which the office sales show a slight increase on the figures for the preceding year.

A paper, by Mr. H. Frankfort, on "Studies in Early Pottery of the Near East, Mesopotamia, Syria, Egypt, and their Earliest Interrelations," was considered by the Council to be of sufficient importance to justify acceptance for publication as an *Occasional Paper*. Up to the present the sales have been satisfactory.

The Institute has also published, at the request of the Colonial Office, "The Tribal Markings and Marks of Adornment of the Natives of the Northern Territories of the Gold Coast," by Major Armitage, and the publication of a second paper for the Department is under consideration.

Research Committees.

The Derbyshire Cave Committee has continued its work with the assistance of a grant from the British Association. An undisturbed site going back to Aurignacian times, and possibly earlier, has been discovered at Mother Grundy's Cave, Creswell Crags.

A report will appear in the *Journal* in due course.

Indian Research Committee and the "Indian Antiquary."

The Council has appointed an Indian Research Committee, of which the function will be to afford a meeting-place for discussion among those in this country who are interested in the study of Indian ethnology, archæology, folk-lore and religions, to co-operate with workers resident in India, and generally to serve as a centre for the

co-ordination and correlation of research in its anthropology. In addition to the discussion of technical points of detail, the Committee will deal with the broader aspects of the subject, and for this purpose will hold meetings of which notice will be sent to all Fellows in the ordinary course. Mr. H. J. E. Peake will act as Chairman and Mr. F. J. Richards as Secretary of the Committee.

In view of the desirability that the Indian Research Committee should have at its disposal a publication for furthering its work and to preserve a record of its proceedings, the Council has decided to take over the publication of the *Indian Antiquary* from the Indian Antiquary Co., Ltd., to which Sir Richard Temple, proprietor and editor of the *Indian Antiquary* for over 30 years, transferred the periodical in 1923. As from January 1st, 1925, it appears under the authority of the Council; but, for the present, it will continue to be printed in India. The editors will continue to be as before—Sir Richard Temple, Mr. S. M. Edwardes, with S. Krishnaswami Aiyangar as Indian editor. They will act under the general direction of the Council.

Rivers' Memorial Medal.

The Council has instituted a Medal in memory of its late President, Dr. W. H. R. Rivers, F.R.S. The medal, or medals, will be awarded annually for meritorious anthropological work in the field. The die has been struck by the Royal Mint and shows on the obverse a portrait of Dr. Rivers. The Council has awarded the medal for 1924 to Dr. A. C. Haddon, F.R.S., for work in New Guinea, Torres Straits and Sarawak.

Housing Fund.

In 1921 the Council instituted a Housing Fund with a view to obtaining more suitable accommodation for the Institute, the present premises being admittedly both inadequate and inconvenient. An appeal for subscriptions to the fund was issued to all Fellows, but in view of the fact that the Council had no concrete proposal to put forward, it is no matter for surprise that the response was not sufficient to justify any immediate action. Since that date the growth of the Institute's work and the congestion of the library and storage accommodation, owing to the automatic increase of the periodicals received by the Institute and of the stock of publications, has rendered the problem acute. At the beginning of the year the Council was encouraged to take action, without further delay, by a generous promise of an anonymous donation of £1,000, which was followed by several individual promises of £100 each. Some difficulty was experienced in finding premises which would be likely to serve the Institute's needs, but finally it was decided to purchase the lease of No. 52, Upper Bedford Place, which has about 17 years to run. An appeal for funds was issued to Fellows in November, and the purchase was completed in December. The offices of the Institute are now in course of removal, although the alterations and reinforcement necessary to enable the building to take the weight

of the Library are not yet quite complete. The inconvenience of removal in these circumstances was unavoidable, owing to the fact that the tenancy of the present premises expires on January 31st. The new building will provide a Library, a Lecture Hall capable of seating 170 persons, office and other accommodation, as well as an extensive storage for stock of publications and unbound periodicals. In addition, certain rooms have been reserved for the accommodation of the Psychological Society, in accordance with an understanding at which the Council arrived with that Society when the question of new premises was first discussed.

In concluding its Report, the Council would wish to record an expression of gratitude to its President, Prof. C. G. Seligman, F.R.S., not merely for the whole-hearted manner in which he has devoted himself to the interests of the Institute during his term of office, but above all for his endeavours to promote the success of the Housing Fund. Indeed, it is mainly due to his efforts that the Institute finds itself to-day upon the point of entering into the occupation of new premises—an event which the Council ventures to hope may mark a period of expansion and rapid progress in its work. The Council has shown its appreciation of Prof. Seligman's services in the Chair by asking him to allow himself to be nominated for a further term of office.

TREASURER'S REPORT FOR THE YEAR 1924.

The revenue of the Institute continues slowly to increase, both on account of the increased number of members and larger sales and subscription lists for the *Journal* and *Man*. There has been a better return from dividends and interest on this occasion, but in the future there will be a serious diminution in this item owing to the necessity of selling the investments in War Stock to provide for the purchase and equipment of the new premises.

The ordinary expenditure has shown a slight reduction, but various items of extraordinary expenditure have led to a great increase in the total payments. The decision to move into new premises involved not only the purchase price, but the necessity under our lease of paying for dilapidations on the rooms in Great Russell Street. This accounts for the increase of the item "Rent, Housekeeping, &c.," from £206 to £513 odd. It will also involve further expenditure in 1925, during the first quarter of which rent will have to be paid both for the Great Russell Street and the Upper Bedford Place premises. The full purchase price of the new premises does not appear in the accounts for 1924, since, on the completion of the purchase, an allowance was made for outstanding rent, rates and taxes, the payment for which has chanced to fall in the new year. In addition, the charges for fees, stamp duty, &c., have not yet been met, as the account was not completed, and there will be a considerable expenditure to meet on the adaptation of the building to permit of the formation of a meeting room on the first floor. Besides this, it would be only

elementary prudence for the Fellows of the Institute to regard an insurance policy, which will provide, at the end of the tenure of the lease, for the return of the monies spent on acquiring and fitting the new premises, as an early charge on the revenues. It is possible that during the first years of the tenure of the new premises the Institute may not utilize all the accommodation for its own purposes, and that any rooms that may be spared might, for the time being, be let to other societies with activities related more or less closely to Anthropology. In such an event the rent received could be set off against the cost of such an insurance policy.

Last year the Council decided, before the opportunity of moving was known, to resume the issue of occasional publications and to establish a medal for field work in Anthropology. The expenditure on "Occasional Publication, No. 6," has been met during 1924, but that involved in the design and manufacture of the "Rivers Memorial Medal" will fall into 1925.

In any case, the Fellows will recognize the supreme importance of the Housing Appeal Fund, since, unless a sum can be raised which will pay for the purchase and adaptation of the new premises, and thus permit of the re-investment of the money taken, temporarily it is hoped, from the Capital Account, the future activities of the Institute must be handicapped until this can be done. The response so far has been good, and the thanks of the Institute are due to many generous donors, but just a further effort is needed to relieve anxiety on the matter of finance for the forthcoming and future years.

F. C. Shrubsall,
Hon. Treasurer.

ROYAL ANTHROPOLOGICAL INSTITUTE

ACCOUNTS FOR

PAYMENTS.	£ s. d.	£ s. d.
		REVENUE
Rent, Housekeeping, &c.		513 16 6
"Journal"	738 17 1	
Less Refunds	146 17 6	
		591 19 7
"Man"		390 9 9
Salaries		201 2 11
Advertising		13 16 0
Stamps and Parcels		103 7 4
Telephones and Telegrams		12 9 6
Printing and Stationery		32 7 6
Coal, Gas, and Light		14 11 9
Epidiascope		18 13 6
Insurance—		
Fire	10 18 9	
Other	5 18 10	
		16 17 7
Subscriptions to other Societies, Directories, etc.		19 15 0
Bank Charges and Commission		2 0 7
Sundries		14 19 6
"Huxley Lecture"		2 15 0
Typewriter		4 4 9
Travelling		2 15 8
Auditors' Fee		3 3 0
Subsidy to Edinburgh Branch		3 10 0
Transfer to Library Account		38 6 0
Balance carried forward, 31st December, 1924		739 19 1
		£2,761 0 6

OF GREAT BRITAIN AND IRELAND.

THE YEAR 1924.

ACCOUNT.

RECEIPTS.	£ s. d.	£ s. d.
Balance Brought Forward, 1st January, 1924		642 18 5
Subscriptions :—		
Current	1,026 0 10	
Arrears	45 0 11	
Advance	48 11 0	
Life	63 0 0	
		1,182 12 9
Entrance Fees		59 17 0
Sale of "Journal"		291 6 2
Sale of "Man"	405 2 7	
Less Refunds	0 10 0	
		404 12 7
Sale of "Huxley Lecture"		4 2 11
Advertising		12 9 6
Dividends and Interest	122 6 10	
" (American Dollar Bonds)	40 14 4	
		163 1 2
		£2,761 0 6

ACCOUNTS FOR

CAPITAL

	£ s. d.
Balance Carried Forward, 31st December, 1924	7,696 7 10
	£7,696 7 10

LIBRARY

	£ s. d.
Books and Binding	39 2 0
	£39 2 0

HOUSING

	£ s. d.
Transfer from Special Items Payments Account (Payment on completion of Contract).....	1,962 0 0
*Payment on Signing of Contract for House	215 0 0
	£2,177 0 0

* These entries did not pass

THE YEAR 1924—continued.

ACCOUNT.

	£ s. d.	£ s. d.
Balance Brought Forward, 1st January, 1924		5,461 3 2
Increase in value of £300 Metropolitan Consolidated 3½% Stock:—		
Valued 31st December, 1924, at 95	285 0 0	
Valued 31st December, 1923, at 93	279 0 0	
		6 0 0
Increase in Value of £886 Burma Railway Stock:—		
Valued 31st December, 1924, at 108	956 17 7	
Valued 31st December, 1923, at 104	921 8 10	
		35 8 9
Sale of War Stock Realised	691 5 11	
Valued 31st December, 1923	647 10 0	
		43 15 11
House Valued at Contract Price		2,150 0 0
		£7,696 7 10

ACCOUNT.

	£ s. d.
Transfer from Special Items Account—Sale of Books	0 16 0
Transfer from Revenue Account	38 6 0
	£39 2 0

FUND ACCOUNT.

	£ s. d.
Balance, 1923	131 13 1
Donations and Interest	1,627 11 5
*Special Donation on Signing of Contract for Purchase of House	215 0 0
Balance, 1924	202 15 6
	£2,177 0 0

through the Institute's Bankers.

ACCOUNTS FOR

ANTHROPOMETRIC

	£	*s.*	*d.*
BALANCE, 1923	17	13	0
	£17	13	0

MISCELLANEOUS

	£	*s.*	*d.*
BALANCE, 1923	86	19	11
TRANSFER FROM SPECIAL ITEMS PAYMENTS ACCOUNT	204	1	11
	£291	1	10

TRIBAL

	£	*s.*	*d.*
BALANCE	0	8	3
	£0	8	3

THE YEAR 1924—continued.

INSTRUMENT ACCOUNT.

	£	s.	d.
Sale of Instruments	10	15	0
Balance, 1924	6	18	0
	£17	13	0

PUBLICATIONS ACCOUNT.

	£	s.	d.
Transfer from Occasional Publications Account	33	14	0
Transfer from Refunds Receipts Account	89	2	6
Balance, 1924	168	5	4
	£291	1	10

MARKINGS ACCOUNT.

	£	s.	d.
Sales	0	8	3
	£0	8	3

BALANCE SHEET.

	£ s. d.	£ s. d.
Amount due for Tribal Markings		0 8 3
Amount due for Anthropological *Notes and Queries* on 1st January, 1924	70 9 10	
Further sum received during the year	17 4 6	87 14 4
Balance of previous Accounts :—		
Revenue Account	759 19 1	
Capital Account	7,696 7 10	
	8,456 6 11	
Less—	£ s. d.	
Anthropometric Instrument Account	6 18 0	
Housing Account	202 15 6	
	209 13 6	8,246 13 5
		£8,334 16 0

	£ s. d.	£ s. d.
House Value of Lease at Contract price		2,150 0 0
Books, Publications and Stock		3,493 6 0
Furniture		200 0 0
£886 Burma Railway Stock, at 108	956 17 7	
£300 Metropolitan Consolidated 3½ per cent. Stock, at 95	285 0 0	
		1,241 17 7
Subscriptions in arrear, valued at		44 0 0
American Dollar Bonds, subject to a contingent liability in excess of their value ; *see* Treasurer's Report, 1918		
Miscellaneous publications		168 5 4
Cash at Bank :—		
Current Account	95 10 7	
Deposit Account, No. 1	250 0 0	
,, ,, No. 2	691 16 6	
		1,037 7 1
		£8,334 16 0

We have examined the Accounts of the Royal Anthropological Institute and have obtained all the information and explanations we have required. In our opinion the Balance Sheet at 31st December, 1924, is properly drawn up so as to exhibit a true and correct view of the state of the Institute's affairs according to the best of our information and as shown by the books of the Institute.

JACKSON, PIXLEY & Co.,
CHARTERED ACCOUNTANTS,
Auditors.

58, Coleman Street, London, E.C.2.
26th January, 1925.

PRESIDENTIAL ADDRESS.

SOME LITTLE-KNOWN TRIBES OF THE SOUTHERN SUDAN.[1]

[With Plates I–VIII.]

By Professor C. G. Seligman, M.D., F.R.S.

The greater part of the anthropologically little-known area which I propose to discuss with you to-night was not taken over by the Sudan until 1914, and was not, I believe, effectively administered until 1916; before 1914, on the east bank of the Nile it had been Uganda territory, and, except between Nimule and Gondokoro, had received little attention, while on the west a considerable area had been included in the Lado enclave ceded by the Belgians in 1910. The Bari-speaking tribes had thus been under two different national systems of administration, while the Lotuko-speaking tribes, with the Acholi and Madi, had lain completely outside Sudan territory, and but little concerning them had been published.[2]

Our journey was planned to determine what were the chief respects in which these tribes differed from the Nilotes to the north, with whom we were already acquainted, but at Khartum it was discovered that the route selected could not be followed on account of sleeping sickness among the Madi of the east bank, and a longer, slower, inland route from Gondokoro via Ali Bey (Bari), Liria (Lokoiya), to Torit, Tarangole, and Logurn (all three Lotuko) had to be adopted. On the return to Torit a detour was made along the southern portion of the Imatong foothills to visit the Lotuko-speaking Lango, the Acholi being studied on a short

[1] The expedition upon which the following information was collected occupied the winter of 1921–2, and was carried out on behalf of the Sudan Government in continuation of the ethnological exploration of the country initiated in 1909–10. As on former occasions, I was accompanied and assisted by Mrs. Seligman. This is not the place to render the thanks due to the large number of those who helped us, but I cannot refrain from mentioning the interest shown by His Excellency the late Sirdar, Major-General Sir Lee Stack. Nor may I omit the unfailing kindness and help of the Director of Education, Mr. J. W. Crowfoot, who permitted Mr. S. H. Hillelson, of the Gordon College, to accompany us as assistant and interpreter, without whose help our work would have presented far greater difficulties than it did. I am also indebted to the Trustees of the Laura Spelman Rockfeller Memorial Fund for contributing towards the cost of the plates in this Address.

[2] An honourable exception must be made in favour of two papers on the Lotuko and the Acholi by Lord Raglan and Captain E. Grove, respectively, which have appeared in *Sudan Notes and Records*.

independent trip from Torit, and the Madi omitted from the new programme, which allowed no time for a visit to the western bank.

The position of the tribes visited on the east bank, as well as those on the west, whose measurements are considered in this paper, is shown in the map constituting Text-fig. 1, which is a tracing slightly modified from that given by Czekanowski

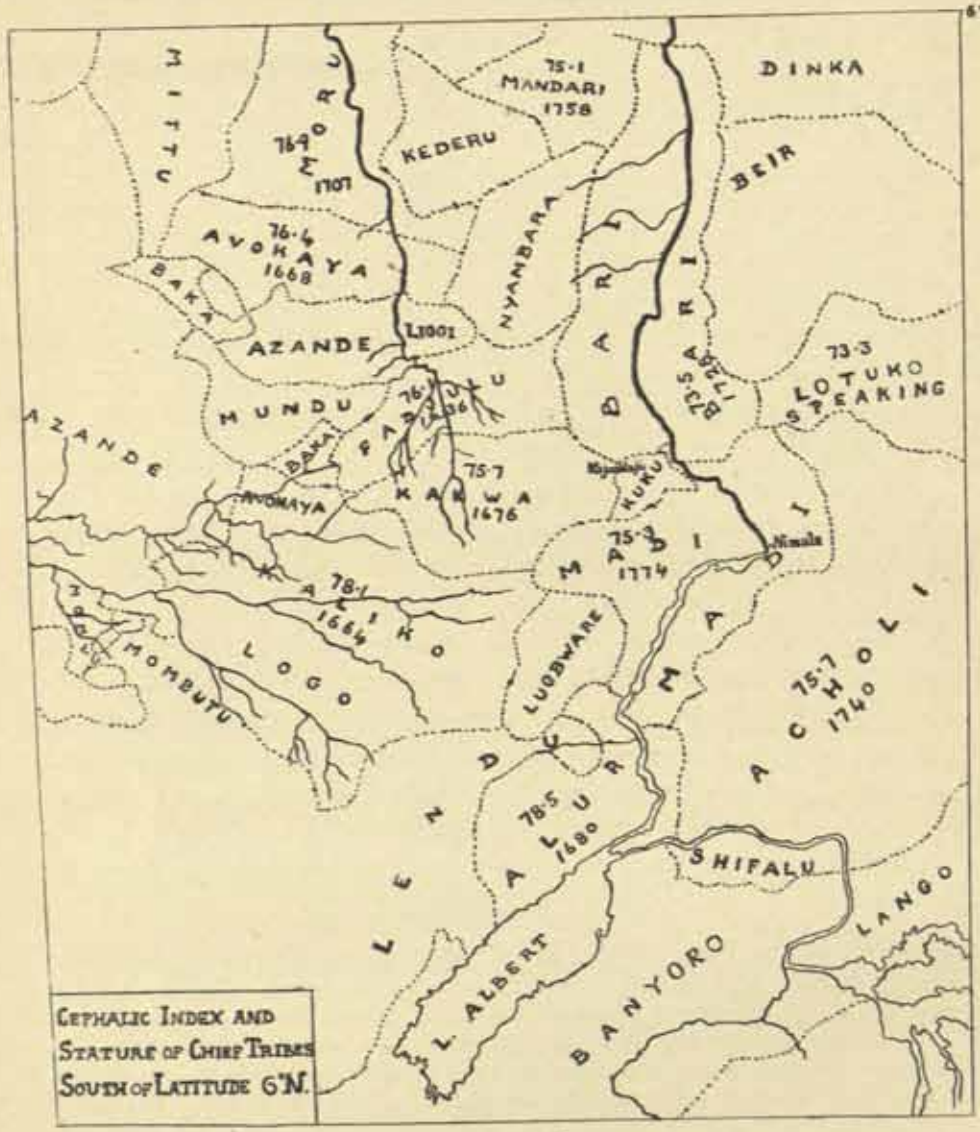


FIG. 1.

in *Petermanns Mittheilungen*, 1912, and afterwards issued in some of the anthropological volumes of the reports of the German Central African Expedition, 1907–8, *e.g.*, in *Forschungen im Nil-Congo-Zwischengebiet*, Erster Band, "Ethnographie" (Leipzig, 1917), appearing under the authorship of Dr. Jan Czekanowski. The figures of the

cephalic indices and stature have been added by myself. Since this map has been in the printer's hands I have received permission from Dr. R. E. W. McConnell to anticipate the publication of his measurements of the Lugbware (10), who are mesaticephals with an average cephalic index of 76, a nasal index of 100·3, and a stature of 1·74 m.

Let me first consider the results of the physical examination of some 200 individuals. In the tables below are given the most important absolute measurements and the chief indices of each group, with in each case the average of the measurement or index, the error to which the average is liable $\left(\frac{\sigma}{\sqrt{n}}\right)$, the standard deviation (σ), and the error to which this is liable $\left(\frac{\sigma}{\sqrt{2n}}\right)$. The table also indicates the averages, etc., of the indices of a number of individuals of certain neighbouring or related tribes, recorded by Czekanowski, as well as certain of the figures given by Leys and Joyce[1] for the Masai, Nandi and Turkana, these being added for the reason that the languages they speak belong to the same group as Bari and Lotuko. For the considerable amount of statistical effort which the working up of this material implies, I am indebted to the Statistical Department of the London School of Economics, and especially to Miss Margaret Hogg.[2]

The first table gives the averages, etc., of the cranial and facial measurements of some 200 subjects taken in 1921 and 1922. These, as far as they go, indicate that, with the exception of the Mandari, the men of the Lotuko-speaking tribes have rather longer heads than those of the Bari-speaking tribes, including the true Bari, the latter having the narrowest skull of the whole series under consideration. Probably the degrees of variation indicated in these respects are of racial significance. The bizygomatic breadth does not appear to present any special interest, but, coming to facial and upper facial lengths, the general homogeneity of these measurements in the Lotuko-speaking tribes is obvious, as is their almost uniform nasal breadth.

[1] N. M. Leys and T. A. Joyce, "Note on a Series of Physical Measurements from East Africa," *J.R.A.I.*, vol. xliii, 1913.

[2] Miss Hogg has further supplied the following note concerning the significance of σ, $\frac{\sigma}{\sqrt{n}}$ and $\frac{\sigma}{\sqrt{2n}}$:—

σ, the standard deviation, is a measure of dispersion, *i.e.*, of the amount of deviation of members of a group from the average of the group. Since the average cephalic index of the Acholi is 75·7, and σ is 2·4, mathematical theory indicates the presumption that about two-thirds of the cases are within 2·4 of 75·7. $\frac{\sigma}{\sqrt{n}}$ measures the accuracy of the average obtained from a sample, thus $\frac{\sigma}{\sqrt{n}}$ for the cephalic index of the Acholi being 0·44, mathematical theory indicates that the chances are 2 to 1 against the error of the average from the sample being greater than 0·44, and that they are 21 to 1 against the error being twice as great, while it is very unlikely to be three times as great. Similarly $\frac{\sigma}{\sqrt{2n}}$ measures the accuracy of σ itself.

TABLE I.—CRANIAL AND FACIAL MEASUREMENTS.

Tribe.	H.I.				H.B.				Bi. z.				F.I.			
	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$
Lotuko (34)	192·9	1·0	6·05	0·7	141·3	0·8	4·7	0·6	134·4	0·9	5·25	0·6	118·2	0·9	5·4	0·7
Lokoiya (20)	190·95	1·5	6·8	1·1	139·9	1·0	4·6	0·7	135·5	0·9	4·1	0·6	116·95	1·1	4·9	0·8
Lango (24)	191·7	1·2	5·8	0·8	142·2	1·0	4·8	0·7	135·0	1·0	4·7	0·7	116·5	1·1	5·2	0·75
Bari (19)	187·0	1·3	5·7	0·9	137·4	1·2	5·1	0·8	136·2	0·9	3·9	0·6	118·5	1·4	5·95	1·0
Mandari (21)	190·0	1·3	5·8	0·9	142·6	0·9	4·1	0·65	135·1	1·2	5·2	0·8	116·4	1·2	5·55	0·9
Kakwa and Fajelu and Nyambara (11)	187·1	2·8	9·4	2·0	141·2	1·6	5·2	1·1	134·9	1·8	5·9	1·3	114·2	2·85	9·5	2·0
Madi (10)	187·9	2·0	6·2	1·4	141·3	1·6	5·2	1·2	133·5	1·5	4·7	1·1	120·3	2·2	6·9	1·5
Acholi (30)	187·3	1·0	5·6	0·7	141·8	0·8	4·6	0·6	134·3	0·9	4·9	0·6	118·3	1·1	5·8	0·75
Moru (20)	185·65	1·3	5·9	0·9	142·8	0·9	4·1	0·6	135·25	1·0	4·4	0·7	115·55	2·1	9·5	1·5

Tribe.	U.F.L.				N.L.				N.B.			
	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$
Lotuko (34)	66·1	0·8	4·9	0·6	50·4	0·8	4·5	0·55	42·4	0·4	2·3	0·3
Lokoiya (20)	65·05	0·9	4·0	0·6	46·35	0·6	2·8	0·4	41·55	0·6	2·7	0·4
Lango (24)	66·2	1·1	5·4	0·8	48·3	0·8	3·7	0·5	42·5	0·5	2·4	0·35
Bari (19)	67·05	1·05	4·6	0·7	51·1	1·1	4·6	0·75	41·7	0·8	3·4	0·55
Mandari (21)	66·4	1·1	5·0	0·8	50·7	0·9	4·0	0·6	42·4	0·4	1·9	0·3
Kakwa and Fajelu and Nyambara (11)	63·1	1·5	5·0	1·1	47·5	1·1	3·8	0·8	41·5	0·7	2·4	0·5
Madi (10)	69·1	1·8	5·6	1·3	50·8	1·2	3·9	0·9	42·0	0·8	2·6	0·6
Acholi (30)	68·5	0·8	4·6	0·6	49·8	0·6	3·4	0·45	43·5	0·7	3·8	0·5
Moru (20)	64·7	1·2	5·2	0·8	48·85	0·8	3·5	0·55	42·0	0·5	2·2	0·35

TABLE II.—INDICES AND STATURE.

Tribe.	EAST BANK.																			
	C.I.				F.I.				U.F.I.				N.I.				Stature.			
	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$
Lotuko (34) ...	73·3	0·48	2·8	0·34	88·4	0·66	3·9	0·47	49·5	0·63	3·7	0·45	84·6	1·42	8·3	1·0	1783	14·0	81·8	9·9
Lokoiya (20)	73·3	0·70	3·1	0·49	86·4	1·04	4·65	0·74	48·25	0·67	3·0	0·47	90·0	1·86	8·3	1·3	1721	15·7	70·3	11·1
Lango (24) ...	74·25	0·49	2·4	0·35	86·0	0·75	3·7	0·53	49·0	0·78	3·8	0·55	88·4	1·58	7·7	1·1	1728	11·8	57·9	8·4
*Masai (91) ...	73·21	0·18	2·39	0·26	—	—	—	—	—	—	—	—	76·1	0·47	6·1	0·33	1700 (about)	—	—	—
*Turkana (9) ...	74·18	0·31	1·36	0·22	—	—	—	—	—	—	—	—	89·85	1·76	7·8	1·2	1690 (about)	—	—	—
*Nandi (14) ...	74·17	0·48	2·68	0·34	—	—	—	—	—	—	—	—	84·79	1·4	6·5	0·9	1677	—	—	—
Bari (19) ...	73·5	0·70	3·0	0·49	87·1	1·22	5·3	0·86	49·3	0·93	4·04	0·66	82·2	2·11	9·2	1·5	1728	19·8	86·2	14·0
Acholi (30) ...	75·7	0·44	2·4	0·31	88·1	0·88	4·8	0·62	51·2	0·65	3·5	0·46	87·4	1·49	8·00	1·05	1740	11·3	62·1	8·0

* Leys and Joyce, *op. cit.*

TABLE II.—INDICES AND STATURE—*continued.*

Tribe.	WEST BANK.																			
	C.I.				F.I.				U.F.I.				N.I.				Stature.			
	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$	Av.	$\frac{\sigma}{\sqrt{n}}$	σ	$\frac{\sigma}{\sqrt{2n}}$
Mandari (21)	75·1	0·55	2·5	0·39	86·6	0·84	3·8	0·59	49·2	0·84	3·9	0·60	84·0	1·66	7·6	1·2	1758	13·4	60·0	9·5
Mixed group of Kakwa and Fajelu Nyambara (11)	75·6	1·36	4·5	0·96	84·7	1·89	6·3	1·34	46·8	1·21	4·0	0·86	87·8	2·40	8·0	1·7	1673	14·9	49·4	10·5
†Kakwa (58) ...	75·73	0·41	3·1	0·3	85·3	0·6	4·4	0·4	52·5	0·4	3·3	0·3	82·7	1·1	8·0	0·7	1676	8	—	—
†Fajelu (14) ...	76·16	0·78	2·9	0·5	85·1	1·1	4·1	0·8	53·6	0·9	3·5	0·7	82·6	1·5	5·7	1·1	1636	16	—	—
Madi (10) ...	75·3	1·04	3·3	0·74	90·2	1·63	5·2	1·15	51·8	1·31	4·1	0·93	83·0	2·09	6·6	1·5	1774	19·0	57·1	13·5
†Alur (169) ...	78·55	0·25	3·2	0·2	81·9	0·4	4·6	0·25	51·9	0·3	3·5	0·2	86·9	0·7	8·9	0·5	1680	5	—	—
‡Kaliko (11) ...	78·10	0·91	3·0	0·6	82·5	0·13	4·4	0·9	48·2	1·3	4·4	0·9	85·6	2·2	7·2	1·5	1665	16	—	—
†Avokaya (24)	76·41	0·50	2·4	0·35	82·8	0·9	4·5	0·65	52·1	0·9	3·6	0·5	85·1	1·5	7·1	1·0	1668	13	—	—
Moru (20) ...	76·95	0·47	2·1	0·33	85·5	1·55	6·9	1·09	47·9	0·89	4·0	0·63	86·3	1·49	6·7	1·05	1707	11·4	51·1	8·1

† Czekanowski, *op. cit.*, Band IV.
‡ A mixed group, comprising 7 individuals measured by Czekanowski and 4 by myself.

The second table deals with the indices calculated from the measurements given in Table I, as also stature, together with the corresponding figures of the above-mentioned tribes of the Kenya Protectorate, as well as the cephalic, facial, upper facial and nasal indices, and stature of certain peoples measured by Czekanowski.[1] These figures are divided into two geographical groups corresponding to the east and west banks of the Nile.

We may summarize the facts to a certain extent by pointing out that on the west bank there is a rise to mesaticephaly immediately south of the Dinka, and that on this bank, with the exception of the Bari themselves, all the Bari-speaking tribes are mesaticephalic, the Bari alone being dolichocephalic. West of the Bari-speaking tribes *i.e.*, further from the river, mesaticephaly increases. On the east bank it is probable that there is no immediate considerable rise south of the Dinka, but our measurements of the Shir are insufficient in number, and the Bari cephalic index is under 74. Nor do the Lotuko-speaking tribes, the Lokoiya and the Lotuko, immediately east of the Bari, have indices differing from the latter to any appreciable extent.

With regard to stature, the Lotuko are roughly 5 cm. taller than the Lokoiya, Langu and Bari, yet with a single exception, whose features and skin colour suggested foreign blood, no Lotuko struck us as specially tall, while several "very tall" men were seen among the Bari, the two tallest of the subjects measured being between 1·89 and 1·90 m. No "very tall" men were seen among the Lokoiya or Lango. Of the Bari-speaking tribes of the west bank, the Mandari are notably taller than the Kakwa and Fajelu, and it is tempting to attribute this (as well as the greater length of their heads) to their proximity to the Dinka. Among tribes speaking Shilluk dialects the Acholi are considerably taller than the Alur, but both fall short of the Shilluk, whose stature is about 1·77 m.[2]

South of the Bari, on both banks, are the Madi; these latter, the Acholi and Alur, are all mesaticephals.

Considering that some of these mesaticephals speak Shilluk dialects (Alur, Acholi), others, including the whole Bari-speaking group, a language of their own remotely related to Masai, while others, *e.g.*, the Madi and Azande, speak languages belonging to yet other groups, it seems obvious that no single, proximate origin can be predicated for them, as it can for the typical Nilotes (Shilluk, Dinka, etc.). There are, however, certain facts which at least enable a suggestion to be made as to the events responsible for the present condition of the tribes of the area under consideration,

[1] *Forschungen, &c.*, Vierter Band, "Anthropologische Beobachtungen" (Leipzig, 1922). The figures given are not the author's averages, but those calculated by Miss Hogg from his individual indices, this being necessary in order to obtain values for σ and the other mathematical expressions.

[2] This, which is perhaps on the low side, is the average of 14 subjects (C. G. Seligman, "The Hamitic Problem in the Anglo-Egyptian Sudan," *J.R.A.I.*, vol. xliii, 1913, p. 633).

and in certain instances we can broadly reconstruct their history. It will be remembered that the great mass of the inhabitants of Dar Nuba are mesaticephals.[1] Now neglecting, relatively recent Arab incursions, these mesaticephals, except where masses of Dinka are interposed, are continuous with the great mass of southern mesaticephals, as indicated diagrammatically in the map on p. 23.[2] Provisionally, then, it seems reasonable to regard the Nuba and southern mesaticephals as forming a great mass, which physically, in the broadest sense, may be considered to form a unit. This idea is borne out by a number of habits, none perhaps important by themselves, which are common to members of the two groups, *e.g.*, the Nuba of Jebel Eliri and the Fajelu. Both scar their women, who wear a bunch of leaves; both remove the lower incisors; and the women, at least, wear a pencil-like lip-plug in the lower lip. Moreover, I do not doubt that I can detect something common in the facial features of many of the members of the two groups, and that this is not only a common divergence from the Nilotes. So much so, indeed, that before I had been among the southern mesaticephals, comparison of some of the Nuba with a few photographs of these southern tribes had suggested that both were representatives of the same stock.

Obviously, in spite of these general resemblances, some much more definite cultural element was required to link up these two great masses of people; and that element, I venture to think, is provided by the special—it would probably be true to say essential—agent in producing rain common to both the Nuba and the southern mesaticephals. I refer to rainstones. Rainstones do not occur among any of the tall dolichocephalic Nilotes (Shilluk, Dinka, Nuer), among whom the rainmaker is a "divine king." On the other hand, they are found among all the southern mesaticephals about whose rainmaking anything is known, *i.e.*, the Bari, Acholi, Madi and some, if not all, of the Bari-speaking tribes of the western bank. I shall describe later the essentials of the rainstone technique of these peoples, but before doing so will refer to the use of rainstones among the southern Nuba, adding the reflection that, when visiting the Nuba in 1910, they were as yet unused to Europeans, that their "medicine men" had not discovered the general harmlessness of ethnologists, and perhaps most important of all, that little had been published concerning rainmaking in Africa, so that, although the use of rainstones by the Nuba can be affirmed with confidence, it is certain that what I have published on

[1] C. G. Seligman, "The Physical Characters of the Nuba of Kordofan," *J.R.A.I.*, vol. xl, 1910. The average indices of 32 male Nuba of Jebel Eliri give the following figures:—C.I., 76·42; F.I., 82·26; U.F.I., 46·19; N.I., 92·26; stature, 1·73 m. It will be seen that, excepting only the higher nasal index, these figures fall well within those yielded by the southern mesaticephalic group.

[2] I desire to thank Lord Raglan for his assistance in preparing this map, as well as generally for the interest he has shown in this Address. It must not, however, be assumed that he agrees with all the views set forth; *e.g.*, he differs from me in holding that the Shilluk left the Nilotic 'homeland'" before the Dinka (*cf.* p. 25).

this subject is lacking, if not actually inaccurate, in detail, while there is no doubt that the ceremony varies on different hills. "At Talodi the rainmaker keeps in his house a potsherd on which lie three fragments of dura grinding-stones, and one fragment of one of the larger stones on which the grain is ground. To bring rain he pours water on these stones inside his house, and kills a ram . . . or pig, cutting its throat in the central court of his house. The blood is caught in a gourd

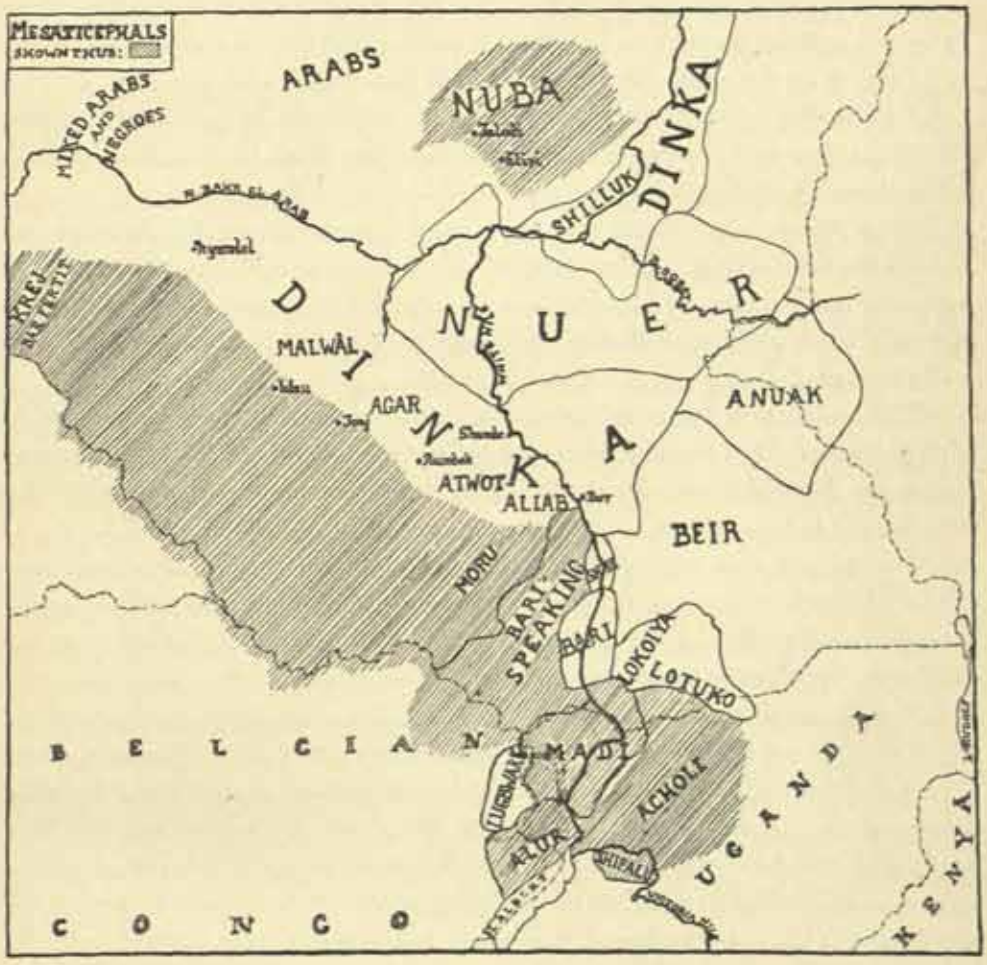


FIG. 2.

and brought outside the house, when first the rainmaker and then the people take some of the blood in their hands and fling it in the air towards the sky, and into the rainmaker's house. Then the rainmaker takes a gourd of water and throws its contents towards the sky. Before he does this the people howl as on joining battle, and the women shriek; only the rainmaker is silent, praying inwardly. The rain should come the same day, or at most in two or three days. When it comes, the

potsherd with stones on it are brought out of the dark corner where they have been kept, and placed where the water from the roof will drip on them during the whole of the rainy season. Then, when the crops are cut, the stones are brought inside the house."[1]

In this account I would emphasize the pouring of water on the rainstones, which are probably of quartz (as this material is very generally used as the handstone in grinding dura, on account of its hardness), and, in view of the laving of the stones among the southern mesaticephals, it seems likely that the rainmaker may rub them as though washing them in his hands when, as described, he pours water upon them.

Passing to the southern tribes, whether mesaticephals of the west bank or Lotuko-speaking dolichocephals of the east bank, rainstones are the essential vehicle for rainmaking, and everywhere one of the most important parts of the ceremony is the cleansing of the stones with water.

Even moderately adequate descriptions of rainmaking among the Bari and Lotuko are far too long to print here; it will, I think, be sufficient for comparison with the Nuba ceremony given above to give the information first received at Mongalla when working with some intelligent Bari well versed in the ways of the white man:—

"The rainmaker has certain green and white stones in a pot, he washes these with water and places them on a big stone [discovered later to be an old grindstone]. He smears the rainstones with simsin oil, he sacrifices a black goat near the stone, then he, his assistants, and all the old men eat of this and the rain comes."

I would add that among all the tribes I am considering at least a great part of the rainmaking ceremony takes place at the grave of the rainmaker's ancestors, themselves rainmakers, and that I believe this to be generally true of the Nuba, as it certainly is of the Nuba of Jebel Eliri.[1]

Now, since rainstones are not only found among a number of the mesaticephalic tribes of the west bank, speaking languages belonging to distinct groups, but also among the dolichocephalic Bari of both west and east bank, speaking a language belonging to the Masai group (but with its centre of gravity on the west bank) and the dolichocephalic Lokoiya and Lotuko of the east bank, speaking languages more closely related to the Masai group and with cephalic indices almost identical with those of the Masai, it seems to follow that we are justified in postulating a cultural movement from west to east, perhaps crossing the river in what is now Bari territory, meeting a series of tribes belonging linguistically to the Masai group and so much influencing the more western of these as to cause them to take over their rainmaking technique, which, to judge by all records, does not exist among the more eastern members of the group, such as the Masai themselves. Moreover, the so-called "ancestor figures of the Bari" afford additional evidence of

[1] Hastings' *Encyclopædia of Religion and Ethics*, Art. "Nuba," p. 405.

this western drift. I first heard of these figures some fifteen or twenty years ago. Finding that a short visit to the Shir brought no evidence of their existence, I asked both Mr. Ernest Haddon and the Venerable Archdeacon Shaw to make enquiries among the Bari proper of the east bank, but neither could even hear of them, and it was not until 1914, when visiting the Ethnological Museum in Vienna, that I obtained any light on the matter. It was then that Dr. Christian (to whom I am indebted for the photograph) showed me the figures reproduced in Pl. I, stated to be "Bari," and later told me that there was another specimen at Venice in the Miani collection. With this basis, enquiries made in 1922 left little doubt in my mind that the Bari of the east bank knew nothing of such figures, but that their provenance is probably one of the Bari-speaking tribes of the west bank, it being remembered that human figures (almost certainly ancestral) are, or were, made by the Bongo[1] (mesaticephals), while among the neighbouring Azande carvings of human figures also occur, though we know too little of this tribe, or rather nation, to state their purpose. All these facts seem to me to emphasize a western drift in the great mass of mesaticephals. It is, however, the Acholi who, as it seems, offer conclusive evidence in this direction, since our knowledge of the Shilluk enables us to be a good deal more precise in this instance than in those already considered.

Substituting for Westerman's suggestion of a Shilluk cradle-land, or centre of dispersion, on the shores of Bahr el Jebel, the idea of a Nilotic cradleland—for the Dinka and Shilluk are physically so much alike that they cannot have originated far apart—we may regard the Dinka as the first great wave of a series of waves to leave the homeland. Next came the Shilluk, who, like the Dinka, moved north. Another group forming, or including, the present-day Acholi moved south; their language, closely related to the Shilluk, but simplified and containing few, if any, tones, and their social organization, indicate that they arose in the Nilotic cradle-land in close relation in time and space with the Shilluk, yet their physical characters do not even recall those of the latter—they are low mesaticephals with a cephalic index (30) of 75·7, of a sturdier, stockier build, some 6 cm. shorter than the Shilluk. Further, their politico-religious system is entirely different, for they do not have divine kings, have never heard of Nyakang (the culture hero of the Shilluk, their first king, and founder of their nation), while their rainmakers use rainstones to obtain rain. Nor is the difference less marked on the psychological side; the aloofness, grimness, and intense sense of superiority of the Shilluk is replaced by a social pleasantness, a willingness to welcome new ideas and to accept the services the white man brings them, including schools and even to a considerable extent his religion; all most striking. Again, while the Shilluk barely grow enough grain

[1] G. Schweinfurth, *Artes Africanæ*, Pl. VIII, while the text refers to the occurrence of similar images among the Mittu. An example somewhat resembling a "Bari" ancestral figure in style, but stated to be about 4 ft. in height, is figured by J. G. Wood (*Natural History of Man*, 1874, "Africa," p. 500).

for their wants, the Acholi are diligent agriculturalists. It would appear, too, that the Acholi lack the fighting vigour and toughness of the Shilluk, who, it must be remembered, never weakened to the Dervishes, though continually raided, and who, in spite of Government efforts, their relative nearness to Khartum, and the accessibility of their villages strung out along the river banks, were fighting among themselves so vigorously only a few years ago that they had to pay really big fines in cattle to the Government.

Ignoring details, there can be but one explanation of these facts; the Dinka and Shilluk waves moved north before the "roundheads" from the west had affected that portion of the parent stock which remained behind and gave rise to the Acholi. So much seems almost certain. On the other hand there is no clear indication whether the new influence produced its effect on the ancestors of the Acholi before or after they had left their old home (it is even possible that it was the impact which led to the Acholi migration), though I am inclined to think that the balance of probability points to the Acholi migration having preceded the westward drift of the mesaticephals.

Turning to the social organization of the two groups of tribes with which I am personally acquainted, viz., the Bari-speaking and the Lotuko-speaking, in both the rainmaker is supreme head, temporal—at least theoretically—and spiritual, while in both groups there are terms signifying "father of the land" (in Bari *monyekak*, in Lotuko *lomonyumegi*), applied to the man, or his descendant, who first cleared or used a particular territory, and who in virtue of this performs certain magical rites, *e.g.*, before sowing or hunting. These "fathers" are of considerable importance since they alone can perform the necessary magic, and exist not only for land but also for fishing-pools.[1]

The Lotuko-speaking tribes present certain definite features in their clan organization which indicates that they are totemic, though their totemism is of an unusual type, while the Bari have a simple system of clan exogamy, of which certain

[1] There are certain other elements in the Bari social system which, as a stimulus to others, I may indicate here by name, though in one case only am I able to suggest any definite reason for their origin or functions :—

Upyet (pl. *Upi*), called *lupia* in a manuscript on the Bari, kindly lent me by Mr. Ernest Haddon of the Uganda Civil Service. The balance of evidence suggests that the term is applied to a servile class or classes, yet information for which I am indebted to Mr. J. H. Driberg indicates that considerable dignity may attach to the *upyet* as the representative of a rainmaker or *monyekak*, who apparently employ their *upi* on ceremonial occasions. It seems certain that *upi* commonly do not possess cattle, and there is even an ætiological myth concerning this.

Ngutut duma, explained by Mr. Driberg as the term applied to certain men of wealth and influence who seem to have a following of their own, though themselves commoners (*boman*).

Matat lugula, who, though themselves regarded as commoners, are often closely related to a rainmaker. Probably a good many government chiefs come under this heading, and Mr. Driberg states that the class has arisen since Baker's time to deal with the white man in matters with which a rainmaker should not concern himself, *e.g.*, the provision of porters.

features probably point back to a time when they too were totemic. The Lotuko system is profoundly connected with their eschatological beliefs, which are of a type totally different to those of the Bari, or of any other Sudan tribe with which I am personally acquainted.

Thus, among that group of Lotuko whose chief village is Tarangole, the social unit includes a number of villages, and is divided into clans (*kang*). At its head is a rainmaker, *kobu* (this is the man commonly meant when a Lotuka speaking Arabic uses the term *sultan*), who is the religious and temporal head of the community, but who, as already stated, is not the "father of the land." The clans are exogamous, descent is in the male line, and at death everyone becomes the animal associated with his *kang*. There may be a certain feeling of intimacy between men and their clan animals, nevertheless men will usually kill their clan animals, though they will not eat them; perhaps feeling varies from clan to clan and even in regard to time and place, indeed the examples given below rather suggest this.

The clans of the Tarangole group with their totem animals appear to be as follows:—

Igago, with its sub-clans Kidongi, Marabat, Lejong, Katang and possibly some others (all having arisen as divisions within Igago), have the crocodile, and in certain instances an animal called *neguru* (apparently an insect), which damages the dura and may provisionally be called the "dura-worm."[1]

Lowudo, *namalong*, a monkey.

Lomini, the elephant.

Lomia, *nanga*, the winged white ant.

Idojok, *amunu*, a snake.

Returning to the sympathy existing between men and their clan animals, into which they are transformed at death, it was said that elephants would recognize the dura planted by a Lomini man by its (Lomini) smell, and so not trample it; we did not hear of other examples of similar acts. Yet it may well be that they are believed to occur, and the curious friendship existing in Emin's time between one Lottor (described by Loinyong when questioned as a commoner of Imatorit, whose clan he did not know) and lions may belong to this class; indeed, the passage which records the friendship rather suggests that Lottor was chief of a lion clan.

"Only leopards are dreaded, for they often attack men, which lions never do, although they lurk in the bush by twos and threes. The Negroes tell me that they are under the control of a chief named Lottor, a very simple good-natured man, who always keeps two tame lions in his house (a fact), and, as long as he receives occasional presents of corn and goats, prevents the wild lions from doing any mischief.

[1] Unfortunately I know nothing concerning the group within the Igago having *neguru* as their totem; indeed, I only heard of this animal towards the end of my visit to Tarangole. Loinyong, the rainmaker of the Tarangole group, had the crocodile as had his adherents, and emphasis was laid on the fact that all rainmakers of Igago had the crocodile. My information does not suggest that any of these had the crocodile and *neguru*, nor that the crocodile was limited to rainmaking families.

It is curious to note that the lions here are really good-tempered (perhaps because they find abundance of food), and they are also much admired, as shown by the following incident:—One day we came upon a lion caught in a pitfall, whereupon the chief Lottor was fetched, and he pushed into the pit branches of trees to enable the lion to get out; this it did, and after giving a roar of acknowledgment, walked off unharmed."[1]

To this account Loinyong added that lions would commonly bring Lottor part of their kill.

Among the Igago clan it was commonly said that an Igago man would not hesitate to kill a crocodile, except in or near the sacred pool Itaraba, for the crocodiles there were the rainmakers of the clan, though at Tarangole, perhaps because he was himself a rainmaker, Loinyong took exception to the killing of a crocodile about six feet long by his son Lakon in a dry Khor near the village. Yet Lakon thought so little of the matter that he and his companions brought the dead beast to Tarangole, alleging—an obvious untruth—that the action had been in self-defence.

As regards the change from man to animal after death, the usual idea is that the animal which was the dead man is at first small, and sometimes, *e.g.*, in the case of the Igago clan, whose members become crocodiles, tends to hang about the dwellings of the living. Later it increases in size and takes to the water, but often not before the "medicine man" (*neibwoni*) has treated it. So, when a Lomini man dies, a herd will come and take away with them the new elephant, while a troupe of monkeys will fetch away the new monkey that was a Lomia.

The burial customs of the Lotuko are unusual and particularly interesting. The body is buried outside the house of the deceased as soon as possible after death. It lies on its side with the knees slightly flexed and the hands under the face. Ignoring, for want of space, the details of mourning and feasting at the grave in the period immediately after death, the construction and significance of the *nametere* must be considered. The *nametere* consists of a core of dry grass, etc., round which are wrapped a number of bamboos, so as to make a more or less cylindrical bundle bound to a rough frame, by which it is carried about. We believe that the text-figure is a fair representation of a *nametere*, but it does not represent one actually used, but only a model made in order to show us what a *nametere* was. However, I ascertained that the real thing bore no signs significant of sex, nor was it ever painted red. The *nametere* is made by certain old men (perhaps four), who, I understood, might be of any clan so long as they were mourners, but here more precision is needed. These are given a goat, and a spear with which to stab it, whoever accepts the spear providing beer for the rest.

The following account of the use of the *nametere*, though no doubt incomplete, is probably accurate as far as it goes, with the reservation that among the Lotuko

[1] *Emin Pasha in Central Africa, being a collection of his letters and journals* (1888), p. 223.

it was always extremely difficult to be certain that the events told us as constituting a ceremony were narrated in correct sequence.

Early in the morning succeeding the death (or if death takes place in the small hours, perhaps the same morning) the *nametere*, on a sort of bier, is brought to the space in front of the house of the deceased, and the mourning dance, called *aboryu*, performed to the beating of drums which have been brought from the drum-house (*nadufa*). Later the drums and *nametere* are taken to the dead man's *nadufa*, and after wailing and drumming another dance called *nelanga* is performed in the afternoon. Both dances have close relation to the *nametere*, and although it may be literally correct to say that they take place round the *nametere*, I cannot be certain of this. After the *nelanga*, the *nametere* is taken into the bush and burnt by the old men who made it, who, according to one informant, pray to Naijok that no one else may die.

The Lotuko absolutely deny that any part of man survives as what we should call a spirit; when a man dies he becomes his clan animal; how, then, should any other part exist? I discussed the matter at length with Loinyong the rain-maker, and have no doubt that this is really the actual orthodox belief, my opinion

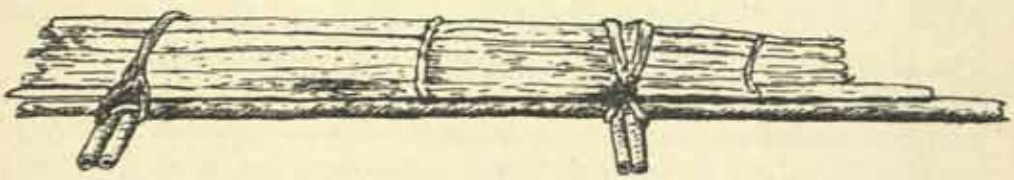


FIG. 3.—NAMETERE.

on this matter being confirmed by the long discussion between himself and Commoro recorded by Baker, who had been struck by the exposed bones he encountered, and naturally connected this practice with some belief in a future life.[1] Yet, when asked why the bones were exhumed, the answer in almost every instance will be that it is done to prevent or cure the illness of a near relative of the deceased, often a child or brother; and so firmly is this reason held, that whenever a Lotuko applies to a medicine-man for a cure for illness, the first question (as I was informed) that the latter is likely to ask is whether the patient has dug up the bones of his father, and if the answer be in the negative, then the matter will assuredly be put in hand at once. Moreover it generally seemed to be implied that if no illness or fear of illness were present, then the bones might be left in the ground. Yet clearly this is not the case. Further enquiries were generally fruitless, and it may be that the majority of the Lotuko carry the matter no further. Yet once at Tarangole we were told that a particular man had been dug up in order that the too frequent menses of his widow might not prevent her new husband

[1] *The Albert N'yanza* (1867), vol. i, pp. 231–4.

coming to her, while at Logurn it was pointed out to us that to leave the bones in the ground would be likely to render the women of the house sterile. It would seem, then, that the basic object of the Lotuko exhumation is the promotion of fertility. But this only leads to further question: how can any activity be connected with the bones among a people who steadfastly deny that any portion other than the bones themselves persist after the decay of the soft parts? It seems reasonable to put forward an explanation on lines suggested by recent work in psychology—namely, that such beliefs as we are discussing have two aspects, which, following dream terminology, we may call the "manifest" and the "latent": the "manifest" is the obvious common-sense belief which says "nothing is left after death"; the "latent" idea (possibly connected with dreams and trances, or perhaps to be traced to a forgotten foreign influence), which, generally speaking, is unrecognized by consciousness (as is the latent content of a dream), nevertheless exists, and manifests itself in some such veiled method as the performance of a custom which might be rationally explained by the conscious existence of the belief.

We have hinted at foreign cultural influence. We suggest, although this was always denied by the natives, that we may regard the *nametere* as the roughest of effigies representing the corpse. If this be so, and it seems difficult to frame any other hypothesis that will explain the carrying of the *nametere* to the club-house of the deceased and the dancing which goes on there, the *nametere* can scarcely be other than the last term in a series of unsatisfactory efforts to preserve the body (mummification), and we may regard it as additional evidence in favour of the existence of ancient Egyptian influence in Central Africa, which, as suggested in 1915, would best explain certain of the beliefs and burial rites of the kings of Uganda, as well as of a number of Congo tribes.[1]

Excepting only the great rainmaking shrines (containing the bones of the dead rainmakers, one of which exists in every Lotuko territorial group), concerning which I have not space to write, I saw no actual shrines to the dead among the Lotuko, though this must not be taken to imply that none exist among the groups not visited. Nor were any noticed during the few days spent in the Lokoiya village of Liria; while, on the other hand, there were several in the Lokoiya village generally known as Minge (from the name of its chief, now dead), and these so resembled some of those of the Acholi that they seem worth while reproducing (Pl. II, Figs. 1 and 2), though it was impossible in the short time at my disposal to obtain any precise information concerning them. The Lokoiya denied that they habitually visited the Acholi villages or that the Acholi visited them; on the other hand, there may have been some contact due to intermarriage between Lokoiya rainmakers and Acholi raingirls, for, although I did not hear of such unions in the very short time spent

[1] *British Association Reports*, 1915. C. G. Seligman, Presidential Address to Anthropological Section, p. 662.

among the Lokoiya, they certainly occurred among the Lotuko, while it is certain that Lokoiya and Lotuko rain families intermarry. Yet among the Lotuko-speaking Lango (as they are commonly called) there was definite evidence that the exhumed bones preserved in rock shelters might have sacrifices offered to them, while outside the houses of most of the tribe there was a shrine of the kind called *natibo*, which I shall presently describe; but I saw no shrines resembling those of the Acholi or of Minge village.

As to these Lango—the name, as I believe, being Acholi in origin—they are a hill people with a clan system resembling that of the Lotuko, who, as it would seem, conquered and imposed their organization on them. They are divided into a considerable number of small communities, and so may represent groups of hillmen almost completely absorbed by the Lotuko, or they may be the northern remains of the Shilluk-speaking Lango of Uganda, so thoroughly subjected to Lotuko influence as to be almost indistinguishable from these in cultural matters. It will be remembered that physically they are about two inches shorter than the Lotuko and slightly broader headed, with a cephalic index (24) of 74·25.

On the cultural side they are remarkable for their skill in irrigation, for they tap their hill streams and with the water drawn off practise extensive and well-planned cultivation. On the religious side they are distinguished by the existence of small stone shrines called *natibo*, miniature cists about a foot high, roughly resembling museum models of dolmens, which are to be seen outside the majority of houses.[1]

Among the sacrifices stated to be connected with the *natibo* are a number which resemble those of the other Lotuko-speaking tribes in everything except that the power invoked is Naijok, which is to be rather vaguely rendered as "God" or "Deity." This seemed so clear at the time, and it was so categorically denied that the dead were or became Naijok, that enquiry was pushed no further, but subsequent consideration of the information obtained from time to time connected with the word *natibo* and the customs connected with the form of shrine now under discussion, does suggest that the word is vaguely connected with the idea of the spirits of the dead, a point of view further supported by the information volunteered that the *natibo* was built in order that Naijok might sit there in comfort in the shade. Besides these *natibo*, which might be called individual, there are special *natibo* at which public ceremonies are performed, *e.g.*, in connection with agriculture, including one on the rock-face above the waterfall on the River Koss, a few miles above Logoforok village and its cultivation. Here—*i.e.*, just below the fall where the left bank, worn smooth so as to form a rock dome, falls precipitously to the stream bed—an annual sacrifice is made before the beginning of the rainy season, when the stream has shrunk to its smallest, and when it is time to begin cultivation. This is said to have been instituted by the eponymous ancestor of Gerinyang clan. A goat is sacrificed

[1] The example of which a photograph is reproduced on Pl. III is by no means the most dolmen-like of those seen.

(presumably by the *lomonyumegi*), beer and some of the stomach contents are thrown into the stream, as also later the bones, while the *natibo* is anointed with blood and beer. The flesh of the sacrifice is eaten by the elders of Gerinyang of both sexes.

I have already referred to the intense interest attaching to the physical characters and social organization of such Shilluk-speaking tribes as the Acholi and Alur, and have indicated how these enable us to reconstruct the main lines of their history, and I would add, by analogy, probably the history of the other tribes speaking Shilluk dialects. Another line of enquiry is indicated by the Acholi word for God, Lubanga, which requires investigation as to its connection with similar words in other languages, *e.g.*, Rubanga in Luganda and Lunyoro, and the same word in Bari, meaning "sacrifice" or "feast." As far as could be ascertained, Lubanga who is of or in the firmament, is strictly otiose; even if he be regarded as having made the world, he scarcely interferes nowadays. It must, however, be remembered that it is not yet known what part, if any, is attributed to him in providing rain. The everyday working religion of the Acholi is the cult of the dead, whose spirits, *tipo*, are regarded as taking a profound interest in the doings of their descendants and as being responsible for much of the good and most of the evil that befalls them.

The Acholi are divided into a number of exogamous patrilineal clans which probably are not totemic, though the measure and meaning of the respect shown to the elephant by certain clans requires further investigation.

The rainmaker, who, as among the Lotuko, must be born of parents both of whom "have rain," is again the spiritual and temporal chief of a particular "unit" area. It is this necessity plus the observance of the requisite exogamy which leads to the delay and sometimes difficulty, which, as hinted by Captain E. Grove,[1] sometimes occurs in the provision of his Dak ker "woman of authority," on whom only he can beget future rainmakers.

The "father of the land" (*wun ngom*) is also an important person, and I regret that I can give no precise account of his functions. Passing to the shrines at which the cult of the dead was carried on, these were called *kač* (or *abila*) and *joktuel*, and it appears that the former applies properly to the shrines of male ancestors, the latter to female.

The *kač* is built opposite the door of the hut, the reason given that the *tipo* might watch what went on in the dwelling. In one instance the *kač* was four yards from the hut entrance, and probably this may be about the usual distance. Typically, the *kač* consists of a roughly-built rack, such as is shown in Plate IV, supported on four uprights at a height of 3–4 feet from the ground; with this platform there is commonly associated one or more groups of four pegs of wood arranged as in the *joktuel* to be described immediately. In addition, there were often other objects, such as a stake supporting the skulls of animals sacrificed, or the numerous

[1] Customs of the Acholi," in *Sudan Notes and Records*, vol. ii, 1919, p. 173.

accessories shown in Pl. IV. The *joktuel* (the word appears to be a compound of *jok* and *tuel*, "snake," but no explanation of its meaning could be elicited) consists of four short pegs or lengths of wood inserted into the ground close together at the angles of an imaginary rectangle, each peg inclined towards its opposite fellow as in the diagram constituting Text-fig. 4.

According to my limited experience, where this arrangement occurred at the side of the house (*N.B.*, away from a *kaĕ*) it was called *joktuel*, and referred to a female ancestor; but the same arrangement might, and often did, occur in relation to the platform *kaĕ*, and then it was not called *joktuel*, and apparently had no reference to a dead woman.

It seemed certain that the Acholi regarded the spirit of the deceased as existing in the earth below the *kaĕ*, and probably this held also with regard to the *joktuel*. Where a stone formed part of the shrine, as in Pl. IV (other instances were seen), this was avowedly that the son of the deceased might sit on it and commune

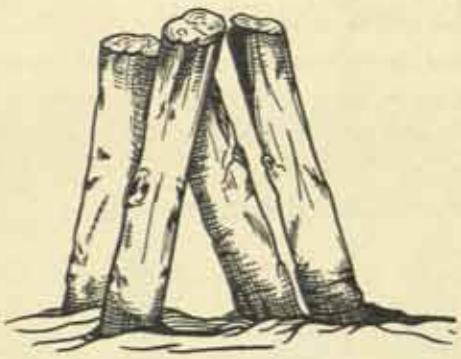


FIG. 4.—DIAGRAM OF *joktuel*.

with the *tipo* below. Whether the *tipo* was thought of as specially pervading the *kaĕ* at any time, we cannot say, and unfortunately we made no special inquiries as to the precise relation of the *kaĕ* to the grave. A notched stake called *lotdiel* (literally goat-stick) is not an uncommon feature of these shrines, and this also is shown in the photograph.

Tipo communicate with the living in dreams, in which they are apparently heard rather than seen, though whether this is invariable we cannot say.

The general resemblance of these beliefs to those of the Dinka and Shilluk is remarkable, though in appearance the shrines in no way resemble those of these tribes; it is also curious—as already noted—that these shrines should in appearance resemble those of certain Lokoiya villages, the whole matter presenting a problem requiring further study of an intensive kind.

Finally, though we did not visit the Madi country, yet, as nothing appears to have been written concerning the social organization of these people, I may add

what little I have been able to discover concerning them from occasional informants, including a youth at the Bor Mission station.

The Madi formerly had cattle, but these have been killed or greatly reduced in numbers by fly. They are divided into exogamous clans, with male descent, and are probably totemistic, for my Bor informant recognized that he had a bird *kuloloro* which was also his father's, while his mother had another animal, perhaps a dog. Another man had the bush buck; if he speared one he would hand his spear to a comrade and never use it again; but, although he might kill his animal, he would not eat it. If one were caught in his hunting net, he could not use the latter until it had been washed; actually, he would probably get rid of it. If he eat of his animal his hair and nails would drop off. Another man had the ground squirrel.

Rainmaking is by means of rainstones, and probably the rainmaker is both spiritual and temporal head of his group, though whether this be large or small I cannot say.

Sickness, perhaps only epidemics, were said to be caused by a spirit called Jueč, while "Ori" was also said to cause illness.

A man is buried on the right of the door of his hut; a woman on the left (coming out of the hut), the grave being a circular pit in which the body is placed in the embryonic position, a man lying on his right side, a woman on her left, both sexes facing west.

Intermarriage with the Bari is probably common.

Conclusions.

(1) On the White Nile, directly south of the Dinka boundary, there is an immediate rise in cephalic index to mesaticephaly on the west bank, while on the east bank this does not occur until south of the Bari. In the Bahr el Ghazal province mesaticephaly prevails immediately west of the Dinka.

(2) Here the great mass of southern mesaticephals is divided from the mesaticephalic Nuba of southern Kordofan only by a zone of immigrant Arabs. It may then be suggested that this whole mass of mesaticephals be regarded as constituting an ethnic unit, using the term in a broad sense (perhaps as broad as that in which we speak of the roundheads of Europe and Hither Asia).

(3) On the cultural side the most obvious common character of importance is that Nuba and southern brachycephals alike use rainstones to produce rain.

(4) Within the mass of southern brachycephals there has been a movement from west to east, which in the latitude of the Bari-speaking tribes has been checked by the counter-pressure of tribes speaking dialects belonging to the Masai group. This counter-pressure is most obvious in the country of the Bari proper and of the Lotuko-speaking tribes lying east of them, among whom it has kept the cephalic

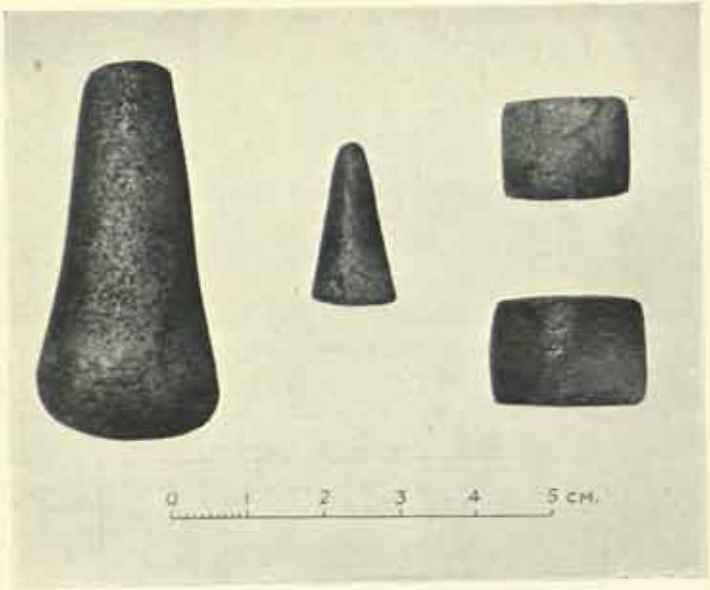


FIG. 1.—BARI RAINSTONES.



FIG. 2.—ANCESTRAL FIGURES OF BARI-SPEAKING TRIBES.

SOME LITTLE-KNOWN TRIBES OF THE SOUTHERN SUDAN.



FIG. 2. GRAVE SHRINES, MINGE VILLAGE, LOKOIYA TRIBE.

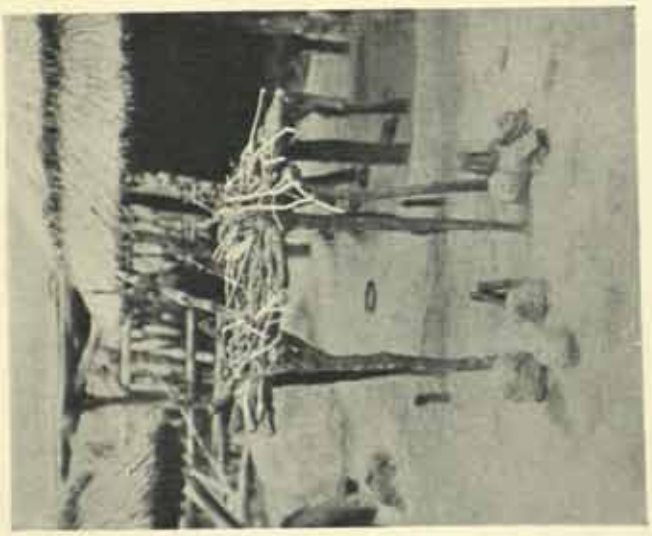


FIG. 1.

SOME LITTLE-KNOWN TRIBES OF THE SOUTHERN SUDAN.



FIG. 1.—*Natibo*, LOGOFOROK, LANGO TRIBE.



FIG. 2.—ACHOLI HUT, *joktuel*, AND REMAINS OF *kač*.

SOME LITTLE-KNOWN TRIBES OF THE SOUTHERN SUDAN.



ACHOLI GRAVE SHRINE.

index within the limits of dolichocephaly, though it has not prevented these tribes taking over the use of rainstones from their western neighbours.

(5) Using language and rainstones as guides, it is possible to reconstitute the history of the Acholi (and probably, at least, of some other tribes speaking Shilluk dialects), and to account alike for their mesaticephaly and their cultural differences from the Shilluk.

DESCRIPTION OF PLATES.

Plate I.

Fig. 1.—Rainstones obtained by Mr. Driberg from the Lugbware, who stated they were of Bari origin.

Fig. 2.—Ancestral figures, of Bari-speaking tribes, in the Vienna Museum; probably from the west bank.

Plate II.

Figs. 1 and 2.—Grave Shrines, Minge Village, Lokoiya Tribe.

Plate III.

Fig. 1.—*Natiko*, Logoforok Village, Lango Tribe.

Fig. 2.—Acholi Village Scene, showing remains of *kač* opposite door of hut and *jokluel*.

Plate IV.

Acholi Grave Shrine, showing *kač*, notched stake, stone upon which the dead man might sit to commune with *tipo*, and other objects.

Plate V.

Figs. 1 and 2.—Bari (240). A "typical" Bari. C.I., 73.8; F.I., 87.4; U.F.I., 47.4; N.I., 89.6.

Figs. 3 and 4.—Bari (243). C.I., 75.0; F.I., 82.7; U.F.I., 45.1; N.I., 85.4.

Figs. 5 and 6.—Mandari (277). Note resemblance to Dinka. C.I., 71.2; F.I., 81.6 U.F.I., 43.1; N.I., 91.1.

Figs. 7 and 8.—Mandari (278). C.I., 78.6; F.I., 79.7; U.F.I., 44.9; N.I., 86.9.

Plate VI.

Figs. 1 and 2.—Mandari (282). C.I., 73.0; F.I., 82.7; U.F.I., 51.1; N.I., 74.5.

Figs. 3 and 4.—Kakwa (298). C.I., 73.8; F.I., 98.4; U.F.I., 56.8; N.I., 82.3.

Figs. 5 and 6.—Lotuko (222). C.I., 70.7; F.I., 85.7; U.F.I., 42.9; N.I., 112.2.

Figs. 7 and 8.—Lokoiya (401). C.I., 68.5; F.I., 80.3; U.F.I., 46.0; N.I., 109.6.

PLATE VII.

Figs. 1.—Lotuko (324). C.I., 72.0 ; F.I., 89.9 ; U.F.I., 54.0 ; N.I., 77.6.
Figs. 2 and 3.—Acholi (201). C.I., 76.3 ; F.I., 86.5 ; U.F.I., 50.4 ; N.I., 88.2.
Fig. 4.—Acholi (209). C.I., 74.3 ; F.I., 88.0 ; U.F.I., 52.8 ; N.I., 90.0.
Figs. 5 and 6.—Madi (212). C.I., 75.3 ; F.I., 82.2 ; U.F.I., 45.9 ; N.I., 93.2.
Figs. 7 and 8.—Madi (216). C.I., 78.5 ; F.I., 96.3. ; U.F.I., 52.9 ; N.I., 76.3.

PLATE VIII.

Figs. 1 and 2.—Moru (258). C.I., 78.3 ; F.I., 77.2 ; U.F.I., 45.6 ; N.I. 87.2.
Figs. 3.—Moru (253). C.I., 78.8 ; F.I., 79.1 ; U.F.I., 46.0 ; N.I., 82.0.
Fig. 4.—Moru (265). C.I., 75.0 ; F.I., 84.7 ; U.F.I., 48·1 ; N.I., 83.3.
Figs. 5 and 6.—Kaliko (284). C.I., 78.5 ; F.I., 91.3 ; U.F.I., 47.4 ; N.I., 92.16.
Figs. 7 and 8.—Kaliko (286). C.I., 80.87 ; F.I., 79.2 ; U.F.I., 43.0 ; N.I., 78.85.

(The numbers in parentheses refer to the serial numbers on the record cards, which will be deposited with the Royal Anthropological Institute.)



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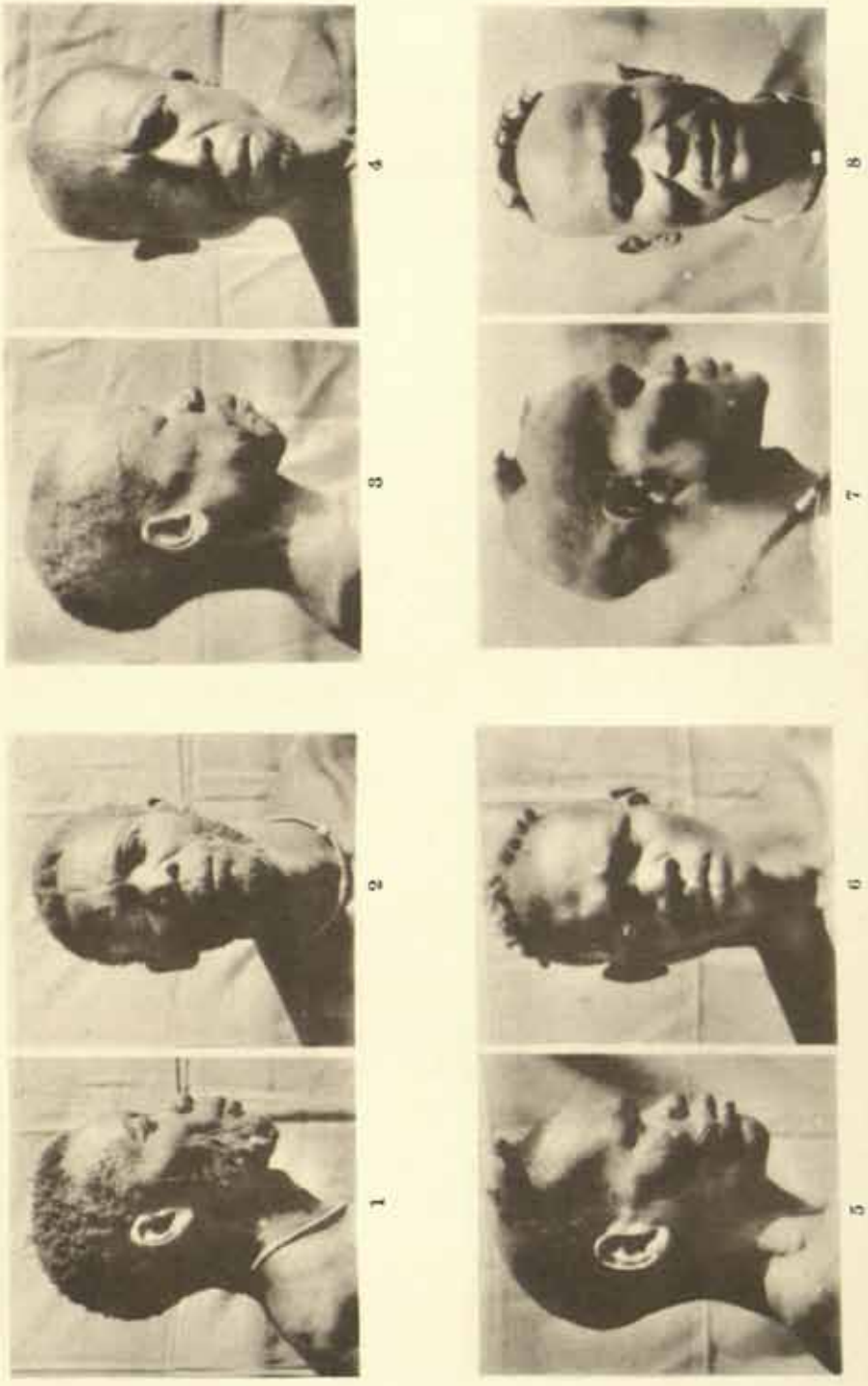
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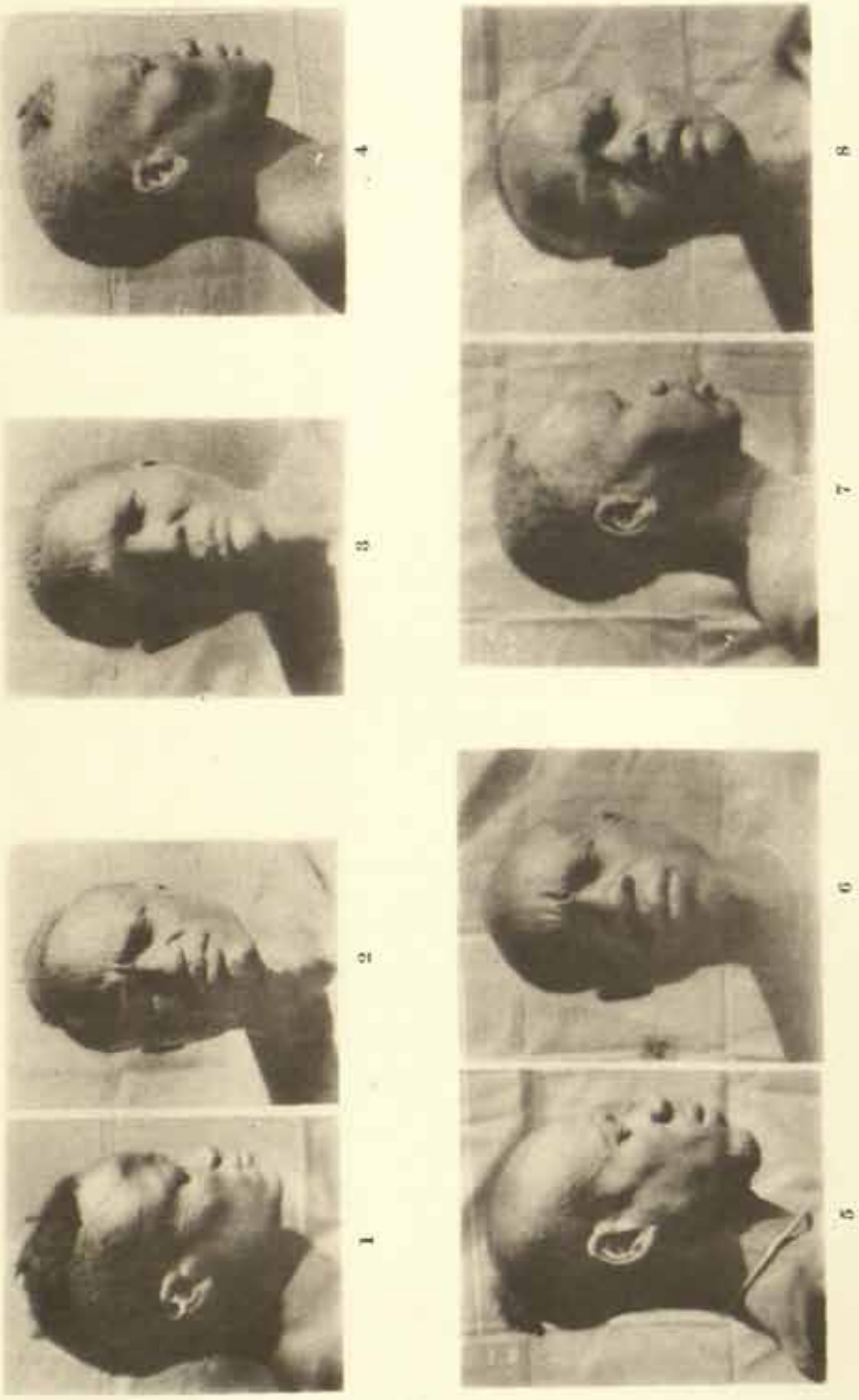
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SOME LITTLE-KNOWN TRIBES OF THE SOUTHERN SUDAN

ANTIQUITIES OF KATANDA (ALTAI).[1]

[With Plates IX–XV.]

By Dr. Alexis Zakharov, *Keeper of the Early Historical Antiquities in the Russian Historical Museum at Moscow.*

In the Russian Historical Museum there is a number of objects, formerly in the Rumyántsev Museum, obtained by W. Radloff in the course of his excavations in the provinces of Tomsk and Yenisei (Siberia). No detailed description or illustration of these objects has so far been published, though all are of considerable interest, and some are unique.

My thanks are due to the Scientific Board of the Russian Historical Museum for permission to publish the material, all derived from the Katanda steppe. I propose to avail myself of the following documents:—The *Compte Rendu* of the Imperial Archæological Commission for 1865, p. 16; W. Radloff's *Aus Sibirien: Lose Blätter aus dem Tagebuche eines reisenden Linguisten* (Leipzig, T. O. Weigel, 1884, vol. ii, chap. vii, pp. 68–143),[2] and a manuscript *Report* (*Rapport*) of Radloff to the Imperial Archæological Commission, dated "Barnaul, 23 Jan., 1866," to which is appended a *List* (*Spisok*) *of Antiquities found in the Altai Mountains during the excavations carried out in the summer of* 1865. The latter documents are preserved in the archives of the Russian Academy of the History of Material Culture, to which I am much indebted for communicating them to me. In the *List* the objects found are numbered from 1 to 116, the date and place of finding of each being mentioned. As the numbers are preserved on nearly all the objects, it has been possible, by using the *List* and the *Report*[3] together, to group them according to the graves in which they were found, but difficulty arises when, as in some cases, the two documents do not agree.

The Rumyántsev Museum published a *Catalogue of the Department of Antiquities: B—Prehistoric Antiquities* (Moscow, 1905), but it can only be used as a sketchy first guide, since it contains essential errors in its ascriptions of origin, as well as in the naming of some of the objects. A final scientific publication of the objects is at present impossible, owing to the great difficulty of obtaining foreign literature and of adducing for comparison analogous material from neighbouring localities. If the objects

[1] A grant towards the translation and publication of this paper was made by the Laura Spelman Rockefeller Memorial Fund. The Editor also desires to acknowledge the assistance he has received from Dr. Ellis Minns and Mr. G. D. Hornblower, O.B.E.

[2] A summary of this account is given in Minns, *Scythians and Greeks*, pp. 248–50.

[3] The *Report* was written soon after the excavations, and not, like *Aus Sibirien*, twenty years later.

described in the present article do but draw the attention of other investigators, I shall consider it has attained its purpose.

I must express my deep thanks to Dr. Ellis H. Minns (Cambridge) and Professor C. G. Seligman (London) for their help towards the publication of my paper; to Professor V. A. Gorodtsóv of the Archæological Department of the Russian Historical Museum, to A. V. Orĕshnikov, President of the Special Historical Department of the same Museum, to Professor N. B. Baklánov and B. A. Kuftin, of Moscow University, to G. O. Borówka, Keeper of the Imperial Hermitage, to V. K. Klein, Keeper of the Department of Textiles in the Russian Historical Museum, for their useful information and help; to Mrs. E. N. Basov, collaborator at the Historical Museum; to my pupils, the Misses O. A. Krivtsov-Grakov and L. A. Evtyúkhov, for drawings illustrating my paper; and to P. A. Detinov, photographer of the same Museum, for the photographs of the objects.

KATANDA CEMETERY, NO. 1.

The Katanda steppe is situated in the southern part of the Russian Altai (lat. N. 50° 10′, long. E. 86° 15′) and forms the eastern section of the Uyman steppe, from which it is divided by offshoots from the Terekhta chain of mountains. Both steppes occupy the site of an ancient lake now silted up. The rivers Great and Small Katanda, which are called by Radloff "Upper" and "Lower" Katanda,[1] flow across the Katanda steppe into the River Katun.

The first cemetery is situated on the left bank of the Lower Katanda, and consists of 30 to 40 tombs covered with mounds of round pebbles; the diameter of the tombs varies from 7 to 35 feet (2 to 10·50 m.). Nearer to the river is a row of flat barrows, each one surrounded by seven stones and rather more than seven feet across. Radloff spent June 18th to 20th, 1865, over three of these flat barrows, digging away the whole extent of each down to the untouched soil, a stiff clay, at a depth of 10 feet; he considered that these barrows were not tombs, but places of sacrifice. He then excavated four small mounds of stone and earth near which, on the east, stood stone columns 10 to 14 inches (0·26 to 0·36 m.) in height. Close to one of these columns was found an iron horse-bit (possibly No. R. 6 = R.M. 3395[2]; *see* Pl. IX, Fig. 1, 1), length 0·20 m., and near another an iron knife, perhaps included among those entered in the *List* under No. R. 115, now missing. No tombs were found in the mounds, and the digging only went down 3 feet 6 inches (1·06 m.) into the virgin earth.

Radloff, in his *Report*, now passes on to the description of the excavations of June 19th and 20th, whereas the *List* gives objects Nos. R. 8–25 as having been found on June 18th; this discrepancy makes it impossible to know in what circumstances these objects were found.

[1] P. P. Semĕnov-Tyanshanski, *Russia* (Petersburg, 1907, vol. xvi, p. 254, and in the map at the end of the book), writes it *Kotanda*; so, too, Stieler, Map 57 K.19.

[2] "No. R." = number in Radloff's *List*; "R.M." = number in the *Catalogue of the Rumyántsev Museum*. [Measures given in British and Metric units go back to Radloff's data expressed in Russian units. Those in Metric alone are due to the author.]

On June 19th and 20th, Radloff, according to the *Report*, opened eight kurgans, 1 foot (0·30 m.) high, and from 2 to 7 feet (0·61 to 2·13 m.) in diameter; of these, four had been already dug, three were of exactly similar disposition—two of a man, one of a woman—and the eighth will be treated later.

The general scheme of the tombs was as follows: the kurgan was composed of a mound 1 foot (0·30 m.) high, made of large[1] stones, not mixed with earth nor overgrown with grass[2]; these continued below the surface of the earth to the depth of 7 inches (0·18 m.); in the middle was an oblong pit, 7 feet long by 4 feet 8 inches broad (2·13 by 1·42 m.), filled with clay and large pebbles which were larger and more numerous on the west side. At the depth of 3 feet 6 inches (1·06 m.) was a layer of pebbles only, under which were found, in the first tomb, two horses; in the second, two horses and a colt; and in the third, three horses. All the horses lay on their sides, heads westwards, and "in each of the tombs one of the horses had in its mouth traces of a horse-bit, now rotted away." This sentence in the *Report* evidently refers to bits, because in the *List* are mentioned "a broken bit (No. R. 15); two parts of an iron bit, 95 mm. and 14 mm. long (No. R. 30 = R.M. 3399); an iron bit (No. R. 31); an iron bit (No. R. 32); and part of an iron bit (No. R. 33)." This gives us five bits: one may be put down to the eighth tomb (*see* below), but this leaves four for three tombs; it is possible that the fragments Nos. R. 30 and R. 33 were parts of one object. Besides these, the *List* mentions "an iron buckle from a belly-band" (No. R. 8) and "an iron buckle" (No. R. 9), both of which are now missing, as also the bits Nos. R. 15, 31, 32 and 33.

Under the horses was a layer of small pebbles, and under that the untouched earth. The pits became broader at their northern end, and here, on the west side, at the depth of 14 inches (0·35 m.) sheep's bones were found, and beneath them the human skeletons. The latter lay all on their backs, heads pointing west or within five degrees north of it; hands close to the bodies, thumbs uppermost. One male skeleton was 5 feet 8 inches (1·73 m.) long and the other 5 feet 10 inches (1·78 m.), while the female was 5 feet 3 inches (1·60 m.) in length.

In the woman's tomb were found: copper ear-rings made of wire twisted in flat spirals to the shape of small double disks (No. R. 13 = R.M. 3405; Pl. IX, Fig. 1, 3), length, 0·06 m., breadth, 0·022 m.; one of them was broken in two. On the head were traces of a head-dress, now rotted away, with copper ornaments (No. R. 14—missing), an iron spade (in *Aus Sibirien* "a celt") (No. R. 31—missing), "a crescent-shaped fish-bone which formed part of the head-dress" (thus in the *Catalogue of the Rumyántsev Museum*) (No. R. 24 = R.M. 3400; Pl. IX, Fig. 1, 4), length, 0·06 m. To the head-dress belonged also a triangular flat object of bone, slightly concave at its lower part (No. R. 114 = R.M. 3442; Pl. IX, Fig. 1, 5), length, 0·07 m.,

[1] Thus in the *Report*; whereas *Aus Sibirien*, vol. ii, p. 105, has "small, broken to pieces."

[2] I do not understand how, in the course of centuries, the surface was not covered with earth and vegetation.

width of base, 0·022 m. By the hands lay a cylindrical ring of silver, broken and stuck together (No. R. 10 = R.M. 3403), diameter, 0·03 m., depth, 0·015 m., and a flat circular spindle-whorl of sandstone (No. R. 12 = R.M. 3404; Pl. IX, Fig. 1, 6), diameter, 0·035 m., thickness, 0·01 m. At the feet were traces of garments, with small copper disks (No. R. 14 = R.M. 3406) and a whetstone,[1] broken on one side (No. R. 19 = R.M. 3408; Pl. IX, Fig. 1, 7), length, 0·16 m., breadth, 0·03 m., thickness, 0·03 m.

Besides these objects the *List* mentions "two bone beads found by the head of a woman" (No. R. 3 = R.M. 3441; Pl. IX, Fig. 1, 8), diameters, 0·02 and 0·01 m., respectively, depth of each, 0·01 m.; they are not, however, mentioned in the *Report*.

It is possible that the remains of a collar were found with this skeleton and on that of another woman, for we read in *Aus Sibirien*, vol. ii, p. 138: "On the necks of two women's skeletons were found remains of narrow erect collars, about 1¾ inches (0·044 m.) in breadth, of very thin stuff on which were sewn rows of small round and oval copper plates; some of the latter were of the same shape and size as the golden plates in the large tomb." They are now missing.

Near the hands of one of the male skeletons were found some small iron and bone arrow-heads, a knife, a spear, and fragments of a bow, but as the *Report* does not give the numbers of the *List* they can only be approximately identified as follows:—No. R. 25, "13 iron arrow-heads"—missing; No. R. 36 = R.M. 3402, a flat iron arrow-head, rhomboid, with a tang, length, 0·13 m.; greatest breadth, 0·032 m. (Pl. IX, Fig. 1, 9); No. R. 35 = R.M. 3401, a bone arrow-head, length, 0·09 m. (Pl. IX, Fig. 1, 10); No. R. 27 = R.M. 3412, a straight iron knife, with handle, length, 0·165 m. (Pl. IX, Fig. 1, 11); No. R. 28 = R.M. 3398, an iron spear-head with tubular socket, length, 0·25 m. (Pl. IX, Fig. 1, 12); No. R. 17 = R.M. 3407, an ovoid bone ball, bored, from an arrow, length, 0·02 m.; diameter, 0·01 m. (Pl. IX, Fig. 1, 13).

The following objects are perhaps to be connected with the fragments of the bow above mentioned:—No. R. 20 = R.M. 3409, fragment of a flat strip of bone, length, 0·125 m., breadth, 0·015 m. (Pl. IX, Fig. 1, 14); No. R. 26 = R.M. 3411, a cylindrical bored piece of bone in the sides of which four holes are pierced crosswise, length, 0·045 m., diameter, 0·02 m. (Pl. IX, Fig. 1, 15).

The *List* further records that "a copper wire ring lay on the chest of the skeleton," No. R. 34 = R.M. 3400, diameter, 0·04 m. (Pl. IX, Fig. 1, 16), and gives the following objects as having been found in this cemetery, though they are now missing from the Museum:—An iron spear-head (No. R. 29), an iron spade (No. R. 16) and a pointed iron spade (No. R. 23).

The eighth and last kurgan excavated in this cemetery was round, 21 feet (6·40 m.) in diameter, 2 feet 4 inches (0·72 m.) high. At the depth of 3 feet 6 inches (1·07 m.) a

[1] But in *Aus Sibirien*, vol. ii, p. 106, this is attributed to a man's tomb.

horse was found, head eastwards, and 1 foot (0·35 m.) lower, wrapped in a fur coat, were fragments of breeches and stockings, the former of some hand-made stuff, the latter of thin felt with quilted soles. The *Report* says: "These fragments are well preserved on account of the fur which covered them." The objects, No. R. 71d, are missing, and so we have to content ourselves with this statement and that of *Aus Sibirien*, II, 137, which says: "Unfortunately the shape of this fur coat could not be properly ascertained, because the hide had rotted away and only a few fragments of it remained. In the fur were separate pieces of the breeches, which were of a rather coarse hand-made stuff, similar to the camel-hair overcoats (*örmök*) of the Kirghiz. One piece consisted of the lower part of one leg and the band round the ankle: it was so tight that we must infer that the breeches were worn inside tight boots; the leg and band were slit up one side and laced with a fine cord, the ends of which hung loose; this probably served to tie the lower end of the breeches round the ankle. The lacing, both at the ankle and round the waist, as is clearly seen on some of the pieces, was plaited and not twisted." Then comes the description, quoted above, of the felt boot or stocking, with the contradictory statement that "it was found in the other tomb." On comparing this burial with the similar one in the large kurgan of the second cemetery, where the garments were found above the burial itself (*see* below), we can only conjecture that Radloff did not thoroughly investigate this kurgan; it being the last day of his work on this site, he was probably in a hurry to pass on to a new one, and was satisfied with what he had already obtained.

Katanda Cemetery, No. 2.

This is situated a mile and a third (about 2 kiloms.) from the village of Katanda, in a valley between the Upper and Lower Katanda rivers, and not far from the mountains. It consists of one large kurgan, more than 7 feet (2·13 m.) high and 100 feet (30·5 m.) in diameter: the mound is of large cobble stones, and shows in several places traces of previous attempts at opening the tomb. Around it are about twenty smaller tombs composed of mounds of stone. Traces of ancient irrigation canals were clearly seen near the tombs. Radloff was occupied in excavating this place from June 21st to 29th, 1865.

The large kurgan was opened up by a trench 77 feet long and 50 feet wide. Scattered among the stones were found skeletons of at least six horses, and some broken human bones, also six iron horse-bits,[1] a few iron and bone arrow-heads, an iron knife and a bronze one, an iron spade, iron sword, a great many beads of blue glass and two heart-shaped pieces of cornelian, probably used as ear-rings (*Aus Sibirien*, II, 107). The *List*, under No. R. 44, also mentions some small glass beads and "an ear-ring of cornelian, two small stone balls and amber beads."

Of these objects the following are now in the Museum:—A bronze knife of the usual Siberian type, with a broken ring at the end of the handle (No. R. 37 = R.M. 3413;

[1] The *List* mentions only four.

Pl. IX, Fig. 2, 1), length, 0·13 m., breadth at one end, 0·013 m., at the other, 0·007 m.; four iron horse-bits—(i) (No. R. 40 = R.M. 3414; Pl. IX, Fig. 2, 2), length, 0·15 m., one ring is broken, the diameter of the other is 0·03 m.; (ii) (No. R. 42 = R.M. 3414; Pl. IX, Fig. 2, 2), length, 0·16 m., diameter of each ring, 0·06 m.; (iii) (No. R. 46 = R.M. 3414), length, 0·13 m., diameter of each ring, 0·04 m.; (iv) (No. R. 47 = R.M. 3414), length, 0·15 m., diameter of the rings, 0·05 m. and 0·045 m. respectively; an iron ring-shaped buckle with a pin (No. R. 41 = R.M. 3415; Pl. IX, Fig. 2, 3), diameter, 0·03 m.; a bundle of 160 light-blue round glass beads (No. R. 43a = R.M. 3416; Pl. IX, Fig. 2, 4), diameter of beads about 0·008 m.; a cornelian bead in the shape of a polyhedral prism (No. R. 44 = R.M. 3417; Pl. IX, Fig. 2, 5), diameter, 0·015 m. According to the *List* the following are missing:—An iron arrow-head triangular in section (R. 38), a small iron knife (R. 39), an iron sword (R. 43), and some minute glass beads (R. 44a).

All these objects were found scattered in disorder. Radloff held that they were thrown out of the burial pit by previous diggers who, however, did not reach the bottom of the great kurgan and only confused the burials in the mound. The *Report* says:—"The horses and men were certainly buried among the stones of the mound, for they were found among them in some parts where the ground was quite intact; they were much scattered by previous diggers. The objects found all prove that the men buried here were of the same race as those buried in the first cemetery. One bronze knife was found, buried accidentally, and proves that a race of the Bronze Age lived there at some period. Were these people buried when the tomb was made or later? The scattering of the bones makes it impossible to answer this question."

The trenching was done fairly quickly because the stones were rather large and superposed on each other, and then the investigator found in the middle of the kurgan a burial-pit 14 feet (4·27 m.) long and 17 feet 6 inches (5·33 m.) broad, filled up with earth and large stone blocks. At the depth of 2 feet 6 inches (0·71 m.) the ground, although it was summer, was frozen, and it was decided to thaw it with fire and remove the thawed mud. At the depth of 14 feet (4·27 m.) below the surface of the earth human bones and those of horses were found among the stones (Radloff does not mention the number of them), and also iron horse-bits with large rings (No. R. 45 = R.M. 3414; Pl. IX, Fig. 2, 6), length, 0·16 m., diameter of ring, 0·11 m. One foot (0·30 m.) deeper an oblong erection of larch-wood was discovered; its short sides, to the east and west, consisted of straight logs, 2 feet 4 inches (0·71 m.), lying in layers; a drawing of it in *Aus Sibirien*, II, Pl. VI, Figs. 6 and 7 (*see* Pl. XIV, Fig. 2), shows that these logs, or billets, in forming the wall, were put cross-wise, *i.e.*, east and west, parallel to the long sides of the tomb. The long sides, to the north and south, consisted of long beams, fitted together so as to cross each other at a sharp angle (*see* Pl. XIV, Fig. 2, 7 and 8). Of the roof over this erection only the northern part was found, the rest, according to Radloff, having been either removed by the previous diggers or rotted away with time, but he does not say if any fragments of the missing

part were found or not; even if none were found, we should not be justified in inferring that there was no roof over the southern part. Radloff unfortunately does not mention the form of the roof.

"For 3 feet 6 inches below the roof the burial-pit was filled with huge stone blocks, among which occurred some irregular pieces of birch-bark and fragments of embroidered leather." No such leather is to be found in the Museum, nor is there mention of any in the *List*. In the *Report*, Radloff considers that these are perhaps remains of a saddle-cloth from the horse to which the bit No. R. 45 belonged. The stone blocks being removed, two thick beams were found crossing the burial-pit and fixed into the long sides of the erection, to which they probably served as buttresses. Radloff believed that the previous diggers arrived only as far as these beams, above which were the horses, weapons and often property of the deceased, and this circumstance, he thought, explained the complete absence of those objects from the bottom of the tomb.

On the western beam lay some garments (No. R. 71a = R.M. 3438; Pl. X, Figs. 1 and 2) thickly encrusted in ice so that they could only be removed by sawing through the beam and taking away a portion of it with the clothes. On thawing out the garment, it appeared in shape like a "dress-coat" made of some silk-stuff lined with sable fur and adorned with leather and pieces of gold plate. The colour was dark-greenish, but may have become so from long contact with the earth. The upper part of the garment has the shape of a jacket coming down nearly to the waist, without collar and with a V-shaped piece cut out of the front to the middle of the chest. At the hips the back of the coat comes down further, forming a sort of tail. The edge of the whole of it was trimmed with a leather strip, 0·075 m. broad, which had both its edges cut into fine saw-teeth, and these were plated with gold. In the spaces between these saw-teeth small gold discs were sewn on in pairs, at intervals of 0·02 m. A similar leather strip went from the shoulder across the chest to the outer edge of the V-shaped opening on the chest, and on the back at the height of the shoulder-blades. The sleeve-cuffs were similarly adorned. Narrower leather strips, 0·033 m. broad, trimmed only with small gold denticles, ran down from the shoulders along the outer seams of the sleeves and also along the back seams as far down as the hips. At the front were neither clasps nor button-holes, and the garment probably did not meet here. The measurements of this "dress-coat" are as follows:—Length of back from the neck to the end of the tail, 1·10 m.; length down from waist to the end of the tail, 0·64 m.; breadth of tail at the hips, 0·43 m., and at its lowest point, 0·26 m.; length (or height) of the front part from the shoulder, 0·69 m., and from the lowest point of the opening on the chest, 0·45 m.; breadth of the back, 0·59 m.; breadth of chest on each side, 0·34 m.; circumference of the arm-hole, 0·44 m.; circumference of the cuff, 0·25 m.; length of sleeve, 0·64 m.; breadth of the lower part of the coat, 1·05 m.

Radloff's conclusion (*Aus Sibirien*, II, 108), that the previous diggers arrived only at the cross-beams, is founded on the fact that under them a layer of birch-bark was discovered extending over the whole of the burial-pit. But this view seems hardly tenable; the diggers stopped probably at a point above the roof of the erection above mentioned, since it seems hardly possible that after penetrating to the erection through the narrow pit they had made, they could carry off through this pit the beams which formed part of the roof of the erection, and afterwards piled up under this covering "the huge stone blocks among which were found the irregular pieces of birch-bark and the pieces of embroidered leather." Radloff's description of the erection is very incomplete; is it possible, for instance, to suppose that the second half of the roof consisted of stone blocks superposed in such unstable equilibrium that they fell down inwards?

A little lower than the cross-beams (probably the western one), "at the south side of the burial-pit," in a block of ice among the birch-bark, was found "rolled up a dress of ermine fur, dyed green and red" (No. R. 71b = R.M. 3439; Pl. X, Figs. 1 and 2), length of back, 1·05 m.; breadth of skirt, 2·25 m.; length of sleeve, 1·00 m.; circumference of sleeve at the wrist, 0·145 m. "It was adorned with buttons covered with gold plates; the sleeves were long and tight, the collar standing up."—(This is a mistake; there is no collar, but only a neck-band.—A.Z.)—"Wrapped up in it were wooden figures of horses and fantastic animals fastened to a silk ribbon, and also a cup"—(Here Radloff is again mistaken.—A.Z.)—"and figures in relief of fantastic animals in the shape of stags and bears" (*Aus Sibirien*, II, 108). Further on we find a more minute description of this dress (*op. cit.*, II, 136), which, with additions and corrections founded on an examination of the coat in its present state, serves as a basis for the following account.

The coat, which Radloff calls a round mantle, is similar to a Kaftan; it has long sleeves, so narrow that Radloff thinks that no one could have put his arms through them, but this is merely due to the leather having shrunk. The lining was of sable, perfectly preserved in some places. The outer surface was of small ermine pelts, with the fur outside, arranged to form a kind of scale pattern; each scale is edged with a green horse-shoe; within this is a red lozenge with concave sides, its upper cusp touching the highest point of the horse-shoe, while its lower half is bounded by the outer curves of the horse-shoe in the row below; the pointed oval spaces between the upper edges of the lozenge and the horse-shoe are grey; these upper edges were adorned with sixteen little leather squares, once gilt, and on the horse-shoe were eleven round wooden buttons, likewise gilt. Radloff mistakenly says that both horse-shoes and lozenges were red, and the spaces between them green (*see* Text-fig. 1).

Round the neck and down the front on each side ran a band something like a stole, made up of rows of square pyramidal wooden buttons set close to each other; the number of rows is fourteen at the top of the garment, but gets less as the band comes down the front and narrows from 0·18 m. to 0·11 m. in width; one gold plate

covered every four buttons. The gold plates must be taken on trust, as not one of them is preserved.

Six rows (Radloff says eight) of like buttons trimmed the lower skirt of the dress; on the shoulders were similar bands consisting of five rows of buttons. At the end of each sleeve, cuff-wise, were eight rows of small leather squares covered with gold, and along the outer seam of the sleeve, from shoulder to cuff, descended two rows of square wooden buttons of the same description.

Such was once the appearance of this kaftan, but now of all this splendour there remain only the wooden buttons and leather squares, with some traces of gold plating.

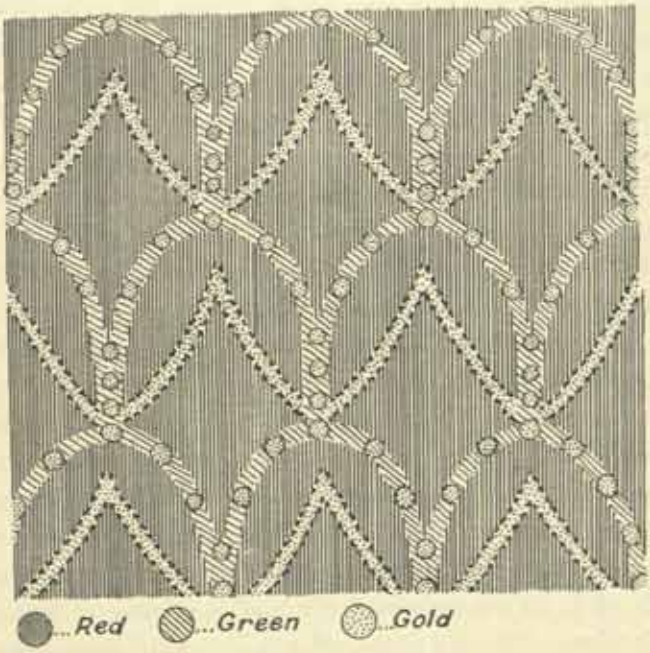


FIG. 1.—DETAILS OF KAFTAN OF ERMINE FUR (RESTORATION).
(*See* Pl. X, Figs. 1 and 2.)

The so-called "breast-piece" (No. R. 71c = R.M. 3438; Pl. X, Fig. 1, 3) is described in *Aus Sibirien*, II, 137; from this and Radloff's notes we may gather that it was also lined with sable fur and covered with green silk; the shape was an irregular oblong; depth, 0·31 m.; length of lower edge, 0·56 m., and of upper edge, 0·41 m. It was trimmed with a strip of fur, the edge of which was adorned with a thin strip of gold. The strips of fur at the side were continued to some length beyond the body of the object, their ends were joined with a small red strap, and they thus formed a loop which was probably passed over the neck. The lower edge of the piece was trimmed with a small red strap with gold plates; at the bottom angles longer ribbons were attached to tie round the waist.

No traces are now to be found of the above-mentioned strings, nor of the strip of gold round the edge of the fur. Professor B. A. Kuftin's observations, with which I agree, show that Radloff's description of this object as a "breast-piece" is not quite correct; further examination of it shows that the upper strap was not a loop to wear round the neck, for the small red strap was sewn on to it at an angle, and on this strap, as well as on the seeming "loop," are remains of a greenish silk stuff, folded in two thicknesses, sewn on to them. The four little wooden figures of horses found wrapped in the so-called "breast-piece" were sewn to a "ribbon" or a "knot of ribbon"; at their feet were remains of the same silk stuff as that of the "breast-piece," and we can therefore only conclude that the horse figures were attached to the "breast-piece" along its upper part which was not trimmed with fur, but consisted only of silk stuff folded in two. Further, it is evident that the figures were only sewn on by their feet, for that is the only part of them pierced with holes for thread. What can have been the purpose of this object, with fragile figures sewn on to it so as to stand up vertically from it, I am unable to conjecture. As the object and the "dress-coat" are made of the same stuff and are of the same colour, it seems probable that the former belonged to the latter and not to the fur kaftan; as a parallel we may cite the kaftan of the modern Tunguz, which is not joined at the front and under which is worn a "breast-piece." All these garments are sewn with sinews.

The object described by Radloff as a bowl, *Schale* (No. R. 63 = R.M. 3429; Pl. XI), diameter, 0·12 m., depth, 0·06 m., is given in the Catalogue of the Rumyántsev Museum as a "burr or boss of wood carved with fantastic animals": it probably served as a phalara, *i.e.*, a boss for decorating horses' head-pieces. It is a wooden plaque formed like a shallow bowl, the inside being hollowed out and left rough, the outside carved with two entwined fantastic animals with much elongated bodies. The body of one of the animals goes right round the plaque, and its head fills the centre of it, its tail ends with the head of a fantastic bird and its feet are furnished with claws. The body of the other animal is still more elongated; it has a long thin neck and large ears. A similar ear is to be seen on one of the wooden heads of animals found in the same kurgan (*see* Pl. XIII, Fig. 2, 5). At the edge of the plaque three holes were made, in one of which a fragment of a strip has been preserved which fastened the phalara to something, perhaps to the "breast-piece." The extremities of the second animal's feet remind us of those woven on a piece of stuff from the small kurgan of the second cemetery, to be described later (*see* Text-fig. 2).

There are nine figures of horses carved in wood, probably larch (Pls. XII, XIII). Of these five are in full profile. Each one is carved out of one piece of wood, with saddles but not stirrups; there is no trace of bridles, which were probably made of some other material, perhaps leather, now quite perished. On the heads are two pairs of holes of which one may have been for inserting ears, but the purpose of the other is obscure, perhaps for aigrettes or a pair of horns, or for pins to fasten the bridles. There are also holes at the hindquarters of the horses; the tail was inserted,

but it is impossible to conjecture of what material it was made. The measurements of the horses are as follows :—

Nos.	Pls.	Height to top of head.	Height to level of back.	Length from tail to muzzle.	Remarks.
		m.m.	m.m.	m.m.	
R. 67 = R.M. 3433...	XII, Fig. 1, 4	85	60	80	—
R. 67 = R.M. 3433...	XII, Fig. 1, 3	75	55	85	Both hind legs, to hocks, missing.
R. 67 = R.M. 3432...	—	70	50	70	Lower part of both near legs broken off. Off hoofs missing.
R. 67 = R.M. 3431...	—	80	50	85	Broken off : lower parts of hind and forelegs ; near hind leg nearly to thigh.
R. 67 = R.M. 3431...	—	75	60	60	Head broken off and forelegs to the knee.

The *List*, under No. R. 67, has "four wooden horses sewn to the silk ribbon and three not sewn." To judge from the holes at the hoofs, where these are preserved, it seems that all these figures were attached by threads which were made of sinews.

Next we have two horses in profile, but with heads turned full face (*see* Pl. XII, Fig. 1, 2). One stands towards the right, the other the left. The height of one to the poll is 0·08 m. ; to level of back, 0·055 m. ; length, 0·06 m. The height of the other to the poll is 0·07 m. ; to level of back, 0·05 m. ; length, 0·07 m.

Finally, there are two horses lying down ; one has the head turned to the left, the body being in profile (Pl. XIII, Fig. 1). There is no saddle. On the head are four holes ; the poll is cut flat where the first pair are bored. Only the near fore-leg is complete ; the other legs are broken off. The reverse side of the figure is shaped so that the animal lies not wholly on its side or its belly, but in a position between the two. Length, 0·06 m. ; height, 0·055 m. Of the other recumbent horse (No. R. 65 = R.M. 3431 ; Pl. XIII, Fig. 2, 3), the head and neck are broken off, also the legs, except the off hind one. Length of body, 0·07 m. ; height, 0·025 m. Both sides of the body have been finished off ; there is no saddle.

Pl. XIII, Fig. 2, 4, represents a small wooden figure of a fantastic animal of the griffin kind, with horse's body, elongated neck, the head ending in a great beak with the upper mandible curved like an elephant's trunk ; legs like a horse's, only the near fore-leg being intact. On the head are four holes ; there are traces of red colour. Length, 0·105 m. ; height, to top of head, 0·65 m. ; to level of back, 0·08 m.

The stuff about the legs of three of the figures of horses is a light silk damask and is now of a greenish hue. Radloff makes no mention anywhere of the order in which the figures were fastened to the stuff, nor do we know their position with regard to each other. Near the legs of three of the horses were found gold plates which,

Radloff says (*Aus Sibirien*, ii, 132), covered the horses' hoofs and the foreparts of the saddles, showing perhaps that the people of the earliest Iron Age adorned their horses in this manner. For the adornment of saddles with gold we have a parallel in the kurgan of Kozel (province of Taurida, district of Melitopol) of the 4th century B.C., a Scythian burial where four plates of gold were found on the saddles of some of the buried horses.

A wooden plaque (No. R. 64 = R.M. 3430; Pl. XIV, Fig. 1) was found with the objects just described, carved in relief with a stag attacked by a bear. Length, 0·12 m.; height, 0·07 m. It must undoubtedly be one of a pair, though Radloff does not mention it as such, for Tolstoy and Kondakov give it so,[1] and similar Siberian metal plaques are found in pairs.[2] It was probably covered with gold plates.

Two animals' heads in wood were found (No. R. 68 = R.M. 3435; Pl. XIII, Fig. 2, 5, 6, and Fig. 3) one of which is specially interesting, being of the same type as that found on the phalara described above (Pl. XI), with its characteristic long ear. Length of one head, 0·095 m., of the other—of which part is missing—0·09 m. We cannot determine the object of which these figures were a part, nor the manner in which they were attached.

Besides the objects above described, we have two wooden bell-shaped pendants, height, 0·035 m., and a quadrangular wooden plaque carved with a stylized animal's head (No. R. 66 = R.M. 3434; Pl. XIII, Fig. 4); length, 0·0475 m.; breadth, 0·04 m. The head is, perhaps, that of a bull, or rather of an elk, since its ears are large and its horns branched. The plaque is fastened to a piece of leather and served, perhaps, as a clasp.

After removing the layer of birch-bark the excavator reached the bottom of the burial-pit, at a depth of 21 feet (6·40 m.). The lower part was filled with unfrozen water, and in it, lying east to west, were two low trays or biers with four legs, and on each a skeleton without any ornaments, head eastwards. The biers were well finished with an axe, but not planed; they were edged with a raised strip 0·015 m. high. "The biers, the borders and the legs, shaped like a truncated cone, were made of one piece of wood; round the legs of the northern bier were fastened bronze hoops, 4½ inches (0·015 m.) broad" (No. R. 71—missing). "As muddy water penetrated from all sides into the grave, I could only with great difficulty collect the gold plates with the images of animals" (these are not in the *List*, and are, in fact, altogether missing) "and the separate pieces of rotten garments" (No. R. 71c = R.M. 3440). "The skeletons were quite decayed, and on being touched fell to dust, their length was from about 5 feet 5 inches (1·65 m.) to 5 feet 8 inches (1·73 m.).

[1] *See* S. Reinach, *Antiquités de la Russie Méridionale*, pp. 375, 377, f. 328.

[2] Cp. the pair of bronze plaques found in the neighbourhood of Troitsko-Savsk, J. Talko-Hryncewicz: "Materials for the Palæontology of Transbaikalia," *Publications of the Troitsko-Savsk-Kiakhta Section of the Amur Department of the Russian Geogr. Soc.*, vol. iii, parts 2, 3: Irkutsk, 1902. Cp. *Trans. Imp. Russ. Arch. Soc.*, XII, i, ii, 1901, pp. 277–82.

The fragments of stuff, described by V. K. Klein, Keeper of the Department of Textiles in the Historical Museum, where they are now housed, are as follows :—

1. Small pieces of very thin silk stuff, with a *Gros de Naples* interlacing of threads. The silk is well prepared. The threads of the woof are a little thicker than those of the warp. On the portions of the stuff preserved are to be seen its original colours, dark red and dark green, now much faded and soiled. It is impossible to wash these pieces on account of their bad state of preservation. The stuff is evidently of oriental workmanship and is identical with Chinese taffeta. Radloff has labelled them, "Various silk-stuffs."

2. Pieces of a similar silk-stuff in a better condition, of a brownish grey colour, labelled by Radloff, "Fine-spun silk stuff, certainly from China."

3. A small piece of cloth of fairly thin, well-twisted, grey yarn, made of camel's hair. There is nothing particular in its make, it has no nap, and has the usual look of cloths woven on primitive hand-looms. Radloff's label is, "Woollen stuff (? camel's hair), home made."

4. Fragments of similar stuff, but of poor quality ; yarn slightly twisted, brown. Radloff's label is, "Woollen stuff, home made, hand-spun."

It is very difficult to ascribe a period to these stuffs, as there are no characteristic features in their technique.

We have already mentioned Radloff's view that "the tomb was previously opened as far as the cross-beams and plundered." In support of it he writes : "All the objects and the horses belonging to the deceased were above the cross-beam. This is proved by the fact that in the upper part of the burial-pit and the mound horses' bones were left by the plunderers and scattered about as being of no use." In our opinion the position can hardly be explained in this way. The description of the explorer, to us rather obscure, seems to show that—first, some great man was buried in the erection in the pit, probably with his wife, and sacrificed slaves and horses were buried in the stones of the mound ; next, a secondary burial was made over the first, since the objects found in the mound (except the bronze sword), and particularly the glass beads, belong to a later period (? 10th to 11th century, A.D.). As to the sword, it might have found its way there quite accidentally, for similar ones are often ploughed out of the ground in the district of Minusinsk.

Several interesting parallels may be noted. The stag on the wooden plaque, No. R.M. 3430 (Pl. XIV, Fig. 1), is like the recumbent one on an oblong plaque of gold from the Axyutintsy Kurgan (A. A. Bobrinskoy, *Smêla*, II, Pl. XXI, cp. Pl. XIII, and Minns, p. 181, Fig. 75) ; this has the same branched antlers ending in similar heads. We may also compare the large gold plaque from Kul Oba (Minns, p. 203, Fig. 98), the sheath in the Melgunov treasure (Minns, p. 171, Fig. 65), the small gold plaque from the neighbourhood of Smêla (Bobrinsky, *op. cit.*, III, 139, Fig. 17, and Tolstoy-Kondakov-Reinach, p. 283, Fig. 248) the small plaque from the collection of B. I. Khanènko (*The Antiquities of the Country of the Dnieper*, pt. iii, Pl. LIXy ; Minns,

p. 191, Fig. 83). Our stag is also partly like the animal on the gold ornament from the Siberian Department of the Hermitage acquired in Verkhneudinsk in 1844 (Tolstoy-Kondakov-Reinach, p. 389, Fig. 348; Minns, p. 275, Fig. 197). This figure seems to represent a conventionalized stag; the main point of difference is that its body, like that from Kul Oba, is decorated with figures of animals, absent in our case.

M. I. Rostóvtsev (*Iranians and Greeks in South Russia*, Oxford, 1922, p. 140) holds that the Siberian plaques came from the Iranian world, directly or through South Russia. He ascribes the gold plaque from Siberia, now in the Hermitage, representing a horse attacked by a griffin, to the 1st century A.D. (*op. cit.*, p. 141, and *see* p. 129, Pl. XXV, Fig. 2). The horse of this plaque is evidently of the same race as that of our wooden ones. G. O. Boróvka, Keeper of the Hermitage, tells me that a salient feature in the representation of stags is that in ours and in the earlier ones in the Hermitage, the antlers are still understood as such, while in the later ones they degenerate into a tree over the animal's head or into a mere ornament.

He considers that a parallel to our wooden horses is to be seen in the bronze plaque from the "Golden Kurgan," near Simferopol, and the figures found by Count Bobrinskoy in the district of Chigirin. The conventional rendering of the head is like that on the bone objects from Kelermes. Thus, in Boróvka's opinion, all the analogies point to early Scythian workmanship. But this view is contradicted by the peculiar costume found in the kurgan, which is certainly not Scythian. What it really is I am at a loss to say. V. T. Verbitski, who has lived for many years among the Altai people, states[1] that the women of the South Altai wear in the summer, instead of a shirt, a *chegedek* made of *daba* or nankeen. The cut of this garment is like that of our "dress-coat," with a long waist; besides the sleeves there are other openings for the arms, the sleeves not being used, but left hanging down. The *chegedek* is trimmed all round with a light-coloured ribbon and is fastened at the neck with two buttons of red glass, of the size of a pea. According to his description, this garment differs from our "dress-coat" only in its extra openings for the arms and in not being made of fur. As to the so-called "breast-piece," the same author, describing the ceremonies of a *kam*, or Siberian shaman, says that he first "put on his uniform, a gown with a 'breast-piece' made of a skin, and a red cap."[2] In our kurgan we have a "breast-piece" and a gown richly adorned with fur and gold, and we might perhaps suppose that this was the costume of a shaman of those days, and that the wooden figures formed part of it; but B. A. Kuftin, Professor of Ethnography at the University of Moscow, tells me that its only point of resemblance to our "dress-coat" is the tail at the back; it has no flaps and is closely clasped at the front. His description is thus at variance with Verbitski's. Kuftin thinks that the nearest analogy is to be found in the costume of the modern Lamut Tunguz, described and illustrated in

[1] V. T. Verbitski, *The Natives of the Altai Country*, Moscow, pp. 10, 11.
[2] *Op. cit.*, p. 46.

Middendorff's travels. Its lappets do not join; it is long at the back and has a breast-piece. Middendorff connects the shaman's breast-piece with that of the Tunguz. The figures of horses might have been attached not only to a shaman's costume, but also, as amulets, to that of ordinary people, as is the present custom of the Soyot-Urankhai, who carve figures of soapstone, inserting tails and ears. B. A. Kuftin is struck by the complete absence in our tombs of head-dresses, which are at present worn by the Ostyaks of the Yenisei, who are considered as one of the tribes surviving from the oldest Siberian inhabitants, and are related linguistically to the modern Tibetans. But I am unable to agree with this view, as neither the illustration of the Tunguz costume in Middendorff's book nor the actual Tunguz costume in the Anthropological Museum of the University of Moscow has anything in common with our "dress-coat," which remains therefore still unexplained. I have had no opportunity of seeing a *chegedek*.

Small Kurgans of the Second Cemetery.

These are situated round the large kurgan described above. They were excavated June 23rd to 25th; in all nine were explored.

In one small kurgan, 14 inches (0·36 m.) high and 4 feet 8 inches (1·42 m.) in diameter, a whole sheep was found at the depth of 14 inches, and nothing else.

Four others were found quite intact; they all contained burials of men and are of the same type as those of the first cemetery. The first was situated to the east of the large kurgan; in it, at the depth of 4 feet 8 inches (1·42 m.), the bones of a horse were found, head eastwards. By them lay a twisted iron bit with rings (No. R. 49=R.M. 3419; Pl. XV, Fig. 1, 1). Length of bit, 0·17 m.; diameter of rings, 0·055 m. A human skeleton was found 14 inches deeper, length, 5 feet 9 inches (1·75 m.). By its left side was a straight iron sword (No. R. 50—missing), 17 iron arrow-heads of triangular section (No. R. 55=R.M. 3423; Pl. XV, Fig. 1, 8), four three-flanged spear-heads with tangs—the flanges are not deep, 0·095 m., 0·09 m., 0·055 m. and 0·07 m.—and some bone arrow-heads, not in the *List* and now missing. On the chest lay some sheep's vertebræ and fragments of a silk dress with woven patterns and lined with silk, erroneously described by Radloff as cotton (No. R. 71e, 6 and 7 = R.M. 3440). The largest silk fragment (Text-fig. 2) is 0·41 m. long, 0·20 m. broad; the size of the repeat of the pattern is about 0·45 m. V. K. Klein, Keeper of the Department of Textiles in the Russian Historical Museum, has furnished the following description: "The piece of stuff is woven of thin, well-finished silk threads in both weft and warp, in a twill weave which causes the surface to look as if ruled with diagonal lines. It is self-coloured, now dark brown, but this is undoubtedly not its original colour, and is due to the action of salts and acids and to other conditions arising from long burial in the earth. A regular twill weave allows of not more than two colours in a stuff; this may have been the case here, as the threads of the weft have a different colour from those of the warp. But it is quite possible, in view of the absence of supplementary

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weft-threads woven in by extra shuttles, that the stuff was all of one colour and like ordinary Chinese damask. Although no fragment has survived with a complete repeat of the pattern, it has been possible to restore the latter almost in its entirety.[1] There are four circular panels arranged in two pairs, one above and one below a central design, which is of lozenge outline and is composed of a central rosette surrounded by a border made by two double-lined circles between which are rings; round the rosette is a formal design of leaves of the well-known 'honeysuckle' or 'palmette' pattern, with stalks in pairs curving to join up the individual palmettes. The circular panels are bordered by two rows of roundels, the inner ones being simple rings, the outer ones composed of three concentric rings. The interior of the panel consists of two winged dragons of Chinese design, with long undulating bodies, not complete, their jaws wide open and feet sharply clawed. They face each other on either side of a central vertical pillar or tree, in the middle of which is an eight-petalled rosette with leaves and some scroll-work about it. The pillar is defined by two double lines between which are rings and ovals. It rises out of a richly developed palmette ornament; the upper part has similar floriations at its sides such as are often found on ancient Greek vases, and at the top is scroll-work of Chinese character, including the well-known pearl symbol.

"We have here characteristics of decorative styles of different peoples and periods. The circular borders and the rings contained by them are characteristic of Sassanian ornaments, as seen in two stuffs in the Victoria and Albert Museum and the Vatican Museum, published by Otto von Falke,[2] of which the first is ascribed to about 600 A.D. and the second to the 7th to 8th century A.D. Examples of the heart-shaped ornament from Greek textiles of the 4th to 6th centuries A.D., in the Royal Berlin Museum, are published by von Falke, *op. cit.*, vol. i, Pl. Ie, Figs. 32, 33." An even closer parallel is afforded by the famous Chinese twill damask from the Horyuji Temple at Nara; the lozenge space is filled in almost identical fashion, the circles have one ring of spots, and instead of the dragons at the sides of a tree we have pairs of mounted archers copied closely from Sassanian originals.[3]

Another piece with phœnixes is in some ways even closer (Falke, 118). The Horyuji piece is of several colours. "The Greek and Sassanian decorative elements enable us to fix the date of our stuff, in all probability, about the 7th to 8th century A.D. Its place of manufacture was more probably China than Persia; the twill weave is particularly characteristic of all rich, smooth stuffs of China, where it has been in use for more than 1,500 years." [Mr. Wace, Keeper of the Department

[1] The description of the pattern has been somewhat paraphrased and developed in the translation.—ED.

[2] *Kunstgeschichte der Seidenweberei*, Berlin, 1913, vol. i, Pl. XX, Figs. 96 and 99.

[3] See *Japanese Temples and their Treasures*, Tokio, 1910, Pl. 203; Dräger, *Kunstlerische Entwicklung der Weberei u.s.w.*, 1, Wien, 1904, Pl. 42, best with colours in J. Lessing, *Gewebesammlung d.k. Kunstgewerbe Museum zu Berlin*, I (1900), Taf. 30; cp. *Trans. Japan Soc.*, XI, 1911, Pl. II.

of Textiles in the Victoria and Albert Museum says, however, that this twill damask, familiar in Byzantine work, was introduced into China under the T'ang Dynasty, 618–904 A.D.] "As far as we can judge, this stuff must be classed with those frequently imported into Russia before the time of Peter the Great, under the name of 'Chinese damask' (*Kamká*)." [This, however, is rather satin damask.] In spite of

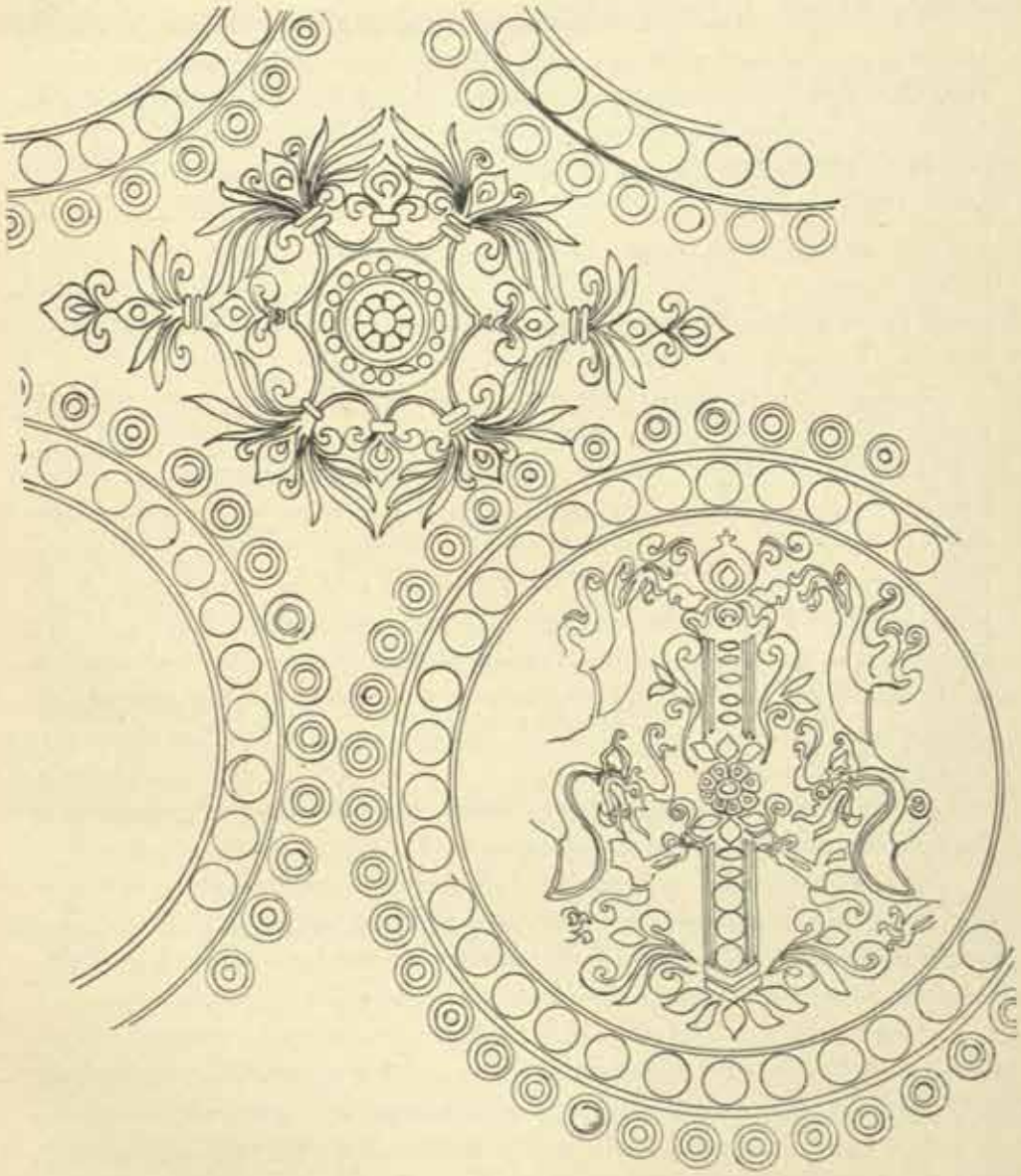


FIG. 2.—DESIGN ON SILK MATERIAL FROM THE TUMULUS (FIRST) OF SECOND CEMETERY OF KATANDA (RECONSTRUCTION).

the "Sassanian elements this stuff can hardly be ascribed to Persia because tissues made there invariably have the figures reduced to somewhat geometrical forms owing to a coarseness in technique produced by the discontinuous way in which, through unequal spacing, the warp-threads on the loom were opened to receive the shuttle. This peculiarity in Persian stuffs continued down to the end of the 17th century, whereas the stuff under consideration displays a high standard of technique, a roundness in the lines of the patterns and a complete absence of those angularities which impress a geometrical character on designs. Finally, Persian designs are always more simple and rhythmic, while Chinese are of more complex composition." [Mr. Wace agrees that our piece must be Chinese, but remarks that Persian can be just as fine, with curves quite free of the zigzag effect above mentioned.]

These observations lead us to ascribe the "stuff to the 7th to 8th century A.D. and to China, or at least some neighbouring locality." Chinese stuffs may very well be found outside China, because they were sent in great quantities to the northern peoples as presents or tribute; thus, in 1004 A.D., the Sung emperor offered to deliver yearly to the Khitans 100,000 *liang* (oz.) of silver and 200,000 pieces of stuff, and a little later increased this by 100,000 *liang* of silver and 100,000 pieces of stuff.[1]

By the head of the skeleton stood a small silver goblet with a ring-shaped silver handle, soldered on by means of a plate shaped like a quatrefoil (No. R. 48 = R.M. 3418; Pl. XV, Fig. 2). Height, 0·075 m.; diameter of neck, 0·06 m.; circumference at middle, 0·27 m. On the bottom is an inscription of four letters in the Orkhon character, *l*, g^2, *č*, *ng*, published by P. Melioranski in *Trans.* (*Zapiski*) *Imp. Russ. Arch. Soc., Oriental Section*, XV, i; Petersburg, 1903, pp. 034–036, and Pl. II, where he classes it among the archaic Turkish inscriptions (see Pl. XV, Fig. 3), and interprets it as the name of the town Lükčün, South of Turfan. The vessel itself was also figured by Y. I. Smirnov in his *Argenterie Orientale*, published by the Archæological Commission, Petersburg, 1909, Pl. XCII, Fig. 169, and it is therefore unnecessary further to treat of it here.

All the bones of the skeleton lay in order except the head, which was found on the right side, near the middle of the body.

In the second kurgan, to the north of the large one, lay the skeleton of a horse, head westwards, unaccompanied by any objects. One foot below this were found human bones, the head westwards; to the right of them lay a strike-a-light with a red stone, missing in the *List*, and an iron arrow-head much rusted, also missing.

In the third kurgan the skeleton had entirely decayed; its head was turned to the west. By it were found the following objects:—A flat oblong strip of bone, with its ends sharpened off to a chisel-edge, forming perhaps part of a bow; length, 0·15 m.; breadth, 0·01 m.; thickness, 0·007 m. (No. R. 56 = R.M. 3425; Pl. XV, Fig. 1, 6);

[1] V. Vasiliev, *History and Antiquities of the Eastern part of Central Asia from the 10th to 13th Centuries*, Petersburg, 1857, p. 22 (off-print from the fourth part of *Publications* (*Trudy*) *of the Oriental Section of the Russian Archæological Society*).

three shuttle-shaped pieces of bone with hollow spaces down their middle; length, 0·075 m., 0·08 m. and 0·085 m. respectively; breadth of each in the middle, 0·01 m.; thickness, 0·007 m.; the length of the hole is 0·02 m.; breadth, 0·005 m. (No. R. 57 = R.M. 3426; Pl. XV, Fig. 1, 5). P. P. Khoröshikh, Keeper of the Irkutsk State Scientific Museum, states that implements of this shape are still used in Siberia for fastening horses' hobbles. In the same kurgan were also found seven iron arrow-heads of triangular section (No. R. 59—missing), and a belt-clasp made of bone (No. R. 61 = R.M. 3428, Pl. XV, Fig. 1, 7), 0·03 m. long, 0·075 m. broad.

In the fourth kurgan the skeleton was accompanied by five arrow-heads, with three broad blades or flanges, and tangs. Only two are preserved (No. R. 62 = R.M. 3424; Pl. XV, Fig. 1, 9), length, 0·11 m. and 0·08 m. respectively.

The *Report* states that the other tombs had either been plundered or, as at some of the cemeteries above described, the mounds proved to contain no burials, being

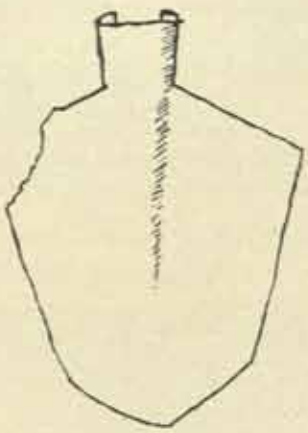


FIG. 3.—IRON SPADE OR PLOUGH-SHARE.
(FROM A SMALL TUMULUS.)

merely places at which funeral rites were performed. Professor Kuftin, however, tells me that empty kurgans in parts of Siberia are not places for performing rites, but cenotaphs erected on the spot where the body of a dead man has been washed, and this may be the case in the Katanda cemetery.

Besides the objects described above, the *List* mentions an iron stirrup (No. R. 53) not included in the *Report*, and now missing; it is not clear from what tomb it came, but it seems to be from a small kurgan of the second cemetery. We must also mention an iron spade or plough-share (No. R. 51 = R.M. 3442; Text-fig. 3), broken at one side; length, with socket, 0·225 m.; without it, 0·16 m.; breadth, 0·145 m. The *List* gives it as coming from the small kurgan of the second cemetery, east of the large one, but the *Report* does not mention it among the objects found there.

I have now given, as far as possible, a detailed account of all the objects found in these cemeteries and of the circumstances in which they were found, and have thus finished my task—a very necessary one in view of the incomplete treatment of this

collection in the past, and of its great interest and the important place which it holds among the objects coming from kurgans of the Altai country.[1]

NOTE.

Among the objects found in Mongolian barrows by P. K. Kozlov's expedition was an imperfect wooden statuette of a deer. In technique it resembled the statuettes [of horses] described above, and like them was gilt either wholly or in part. The barrows probably belong to the time of the Han dynasty and this may help to date the Katanda barrow. The Russian Academy of Sciences is at present preparing a full description of all Kozlov's finds.

DESCRIPTION OF PLATES.

KATANDA, FIRST CEMETERY.

PLATE IX.—Fig. 1.

1. Fragment of iron horse-bit from the small kurgan without a tomb. (No. R. 6 = R.M. 3395.)
2. Half of iron horse-bit from the kurgan with man's barrow. (No. R. 30 = R.M. 3399.)

Women's Barrow.

3. Two ear-rings of copper wire. (No. R. 13 = R.M. 3405.)
4. Fish bone, part of head-dress. (No. R. 24 = R.M. 3400.)
5. Plate made of bone, from a head-dress. (No. R. 114 = R.M. 3442.)
6. Stone spindle-whorl. (No. R. 12 = R.M. 3404.)
7. Whetstone (No. R. 19 = R.M. 3408.)
8. Two bone beads. (No. R. 3 = R.M. 3441.)

Man's Barrow.

9. Iron arrow-head. (No. R. 36 = R.M. 3402.)
10. Arrow-head made of bone. (No. R. 35 = R.M. 3401.)
11. Iron knife. (No. R. 27 = R.M. 3412.)
12. Iron spear-head. (No. R. 28 = R.M. 3398.)
13. Small ball made of bone from an arrow. (No. R. 17 = R.M. 3407.)
14. Fragment of a flat strip of bone. (No. R. 20 = R.M. 3409.)
15. Cylindrical bored piece of bone with holes made cross-wise. (No. R. 26 = R.M. 3411.)
16. Copper wire ring. (No. R. 34 = R.M. 3400.)

KATANDA, SECOND CEMETERY.

The Great Barrow.

PLATE IX.—Fig. 2.

1. Bronze knife. (No. R. 37 = R.M. 3413.)
2. Four iron horse-bits. (No. R. 40 = R.M. 3414; No. R. 42 = R.M. 3414; No. R. 46 = R.M. 3414; No. R. 47 = R.M. 3414.) (1 and 2 found among the stones of the barrow.)
3. Iron buckle. (No. R. 41 = R.M. 3415.) Found among the stones of the barrow.
4. Bundle of 160 blue glass beads. (No. R. 43A = R.M. 3416.) Ditto.
5. Cornelian bead. (No. R. 44 = R.M. 3417.) Ditto.
6. Iron horse-bit with large rings, found under the surface of ground. (No. R. 45 = R.M. 3414.)

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[1] It should be noted that of the objects figured in *Aus Sibirien*, vol. ii, pl. 7, and described as "Wood-carvings from the large tomb on the Katanda," only Nos. 2, 3, 6 and 7 come from there. Where Radloff found the rest does not appear from any of his authentic accounts. Mr. G. O. Borówka informs me that they are in the Hermitage.

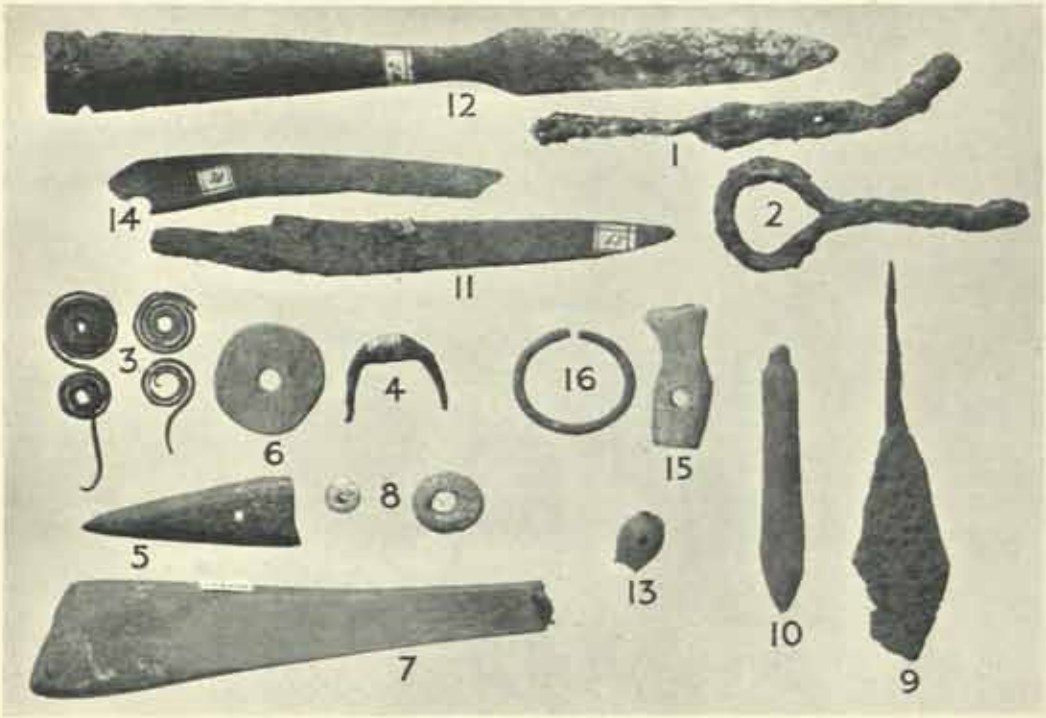


FIG. 1.—OBJECTS FROM KATANDA, FIRST CEMETERY (*see* p. 56).

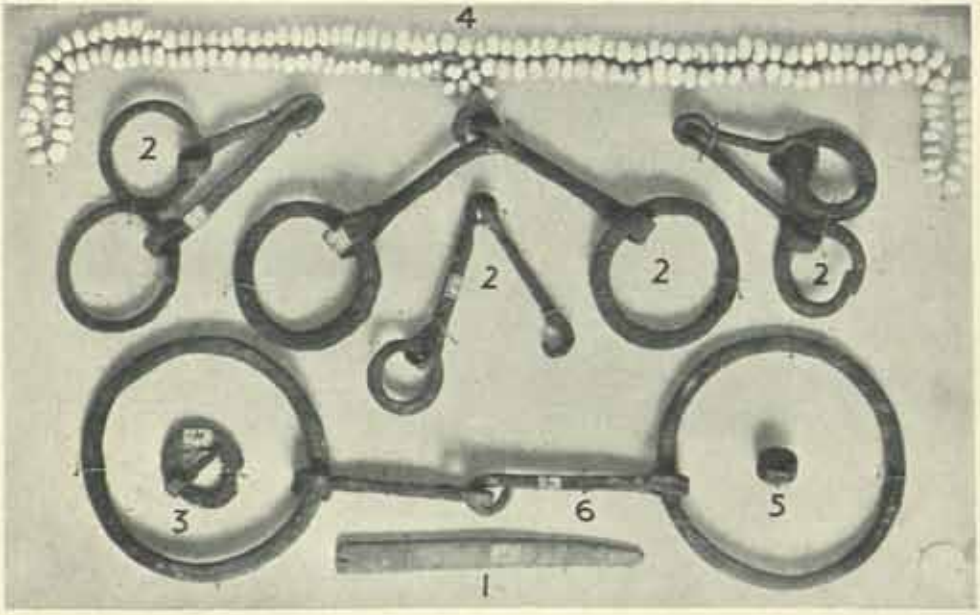
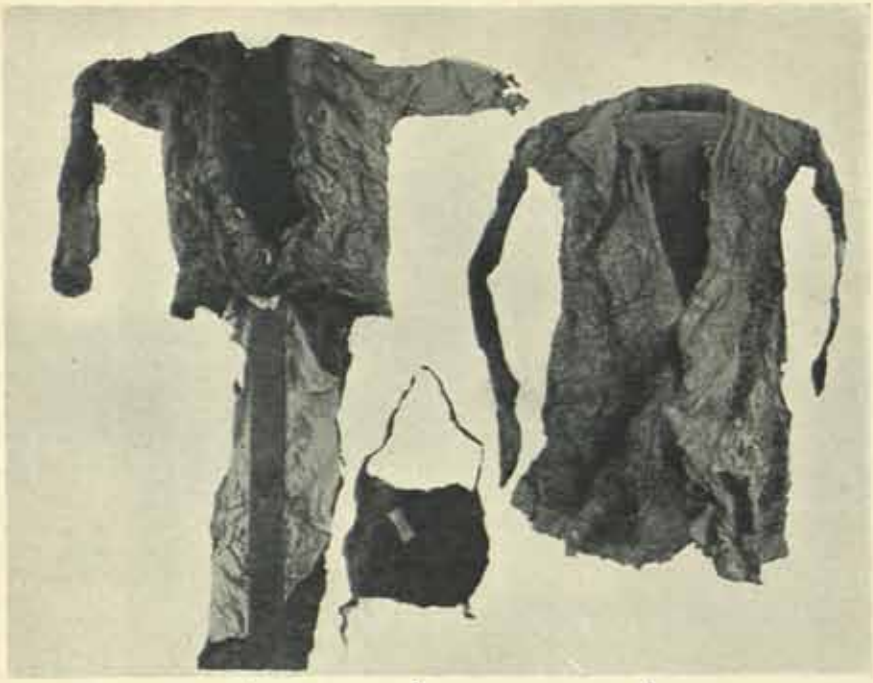


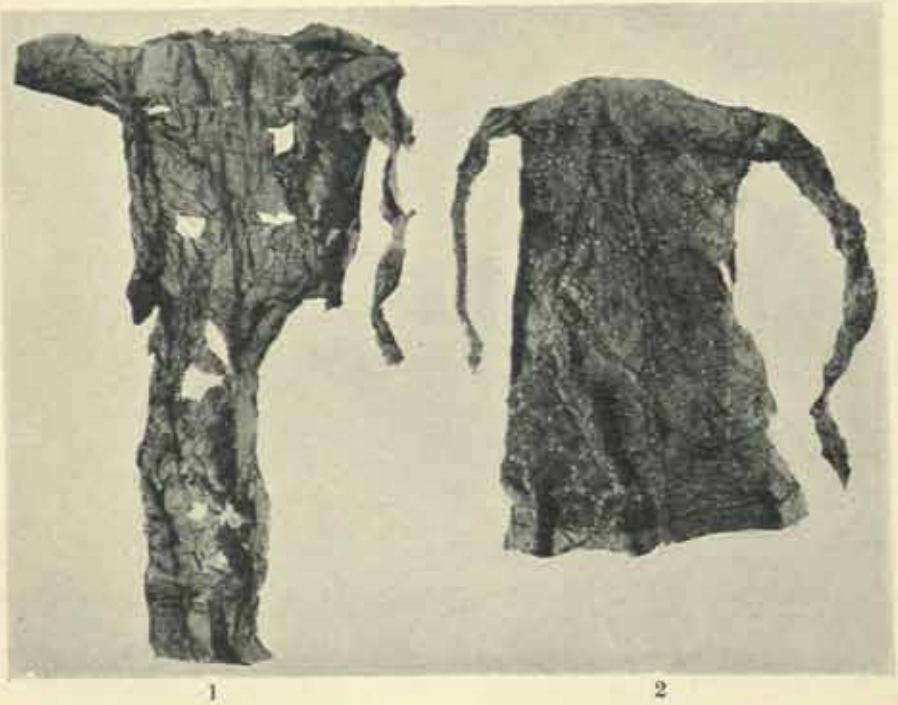
FIG. 2.—OBJECTS FROM KATANDA, SECOND CEMETERY, THE GREAT BARROW (*see* p. 56).

ANTIQUITIES OF KATANDA (ALTAI).



1 3 2

FIG. 1.—(1) DRESS-COAT COVERED WITH SILK STUFF AND LINED WITH SABLE FUR. (2) KAFTAN OF ERMINE FUR. (3) SO-CALLED BREAST-PIECE.



1 2

FIG. 2.—(1) DRESS-COAT COVERED WITH SILK STUFF AND LINED WITH SABLE FUR. (2) KAFTAN OF ERMINE FUR.

ANTIQUITIES OF KATANDA (ALTAI).



FIG. 1.—WOODEN BOSS CARVED WITH ANIMALS. (FROM THE GREAT TUMULUS.)



FIG. 2.—OUTLINE DRAWING OF CARVING ON BOSS SHOWN IN FIG. 1.

ANTIQUITIES OF KATANDA (ALTAI).

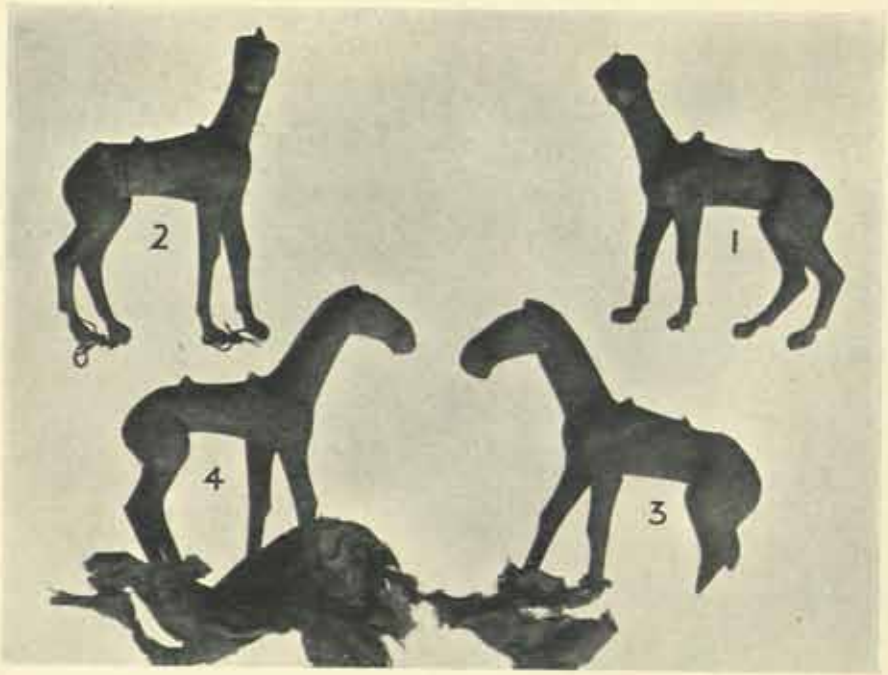


FIG. 1.—(1) AND (2) WOODEN FIGURES OF STANDING HORSES, THE HEADS TURNED FULL FACE. (3) AND (4) WOODEN FIGURES OF STANDING HORSES IN PROFILE. (FROM THE GREAT TUMULUS.)



FIG. 2.—THE HORSE IN FIG. 1—(3), SHOWING DETAIL. (½.)

ANTIQUITIES OF KATANDA (ALTAI).



FIG. 1.—WOODEN FIGURE OF HORSE LYING DOWN. ($\frac{1}{11}$.)
(FROM THE GREAT TUMULUS.)



FIG. 4.—WOODEN PLATE WITH HEAD OF BULL OR ELK, FASTENED TO A STRAP (CLASP).

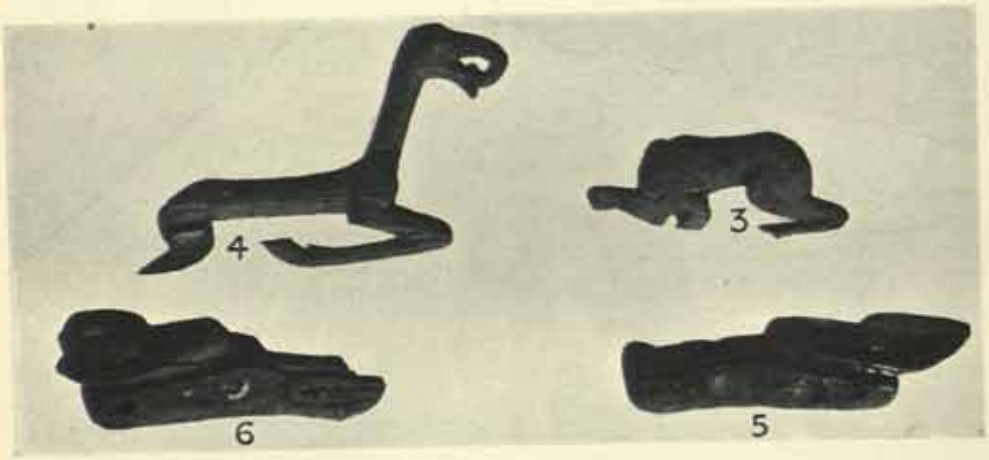


FIG. 2.—(3) WOODEN FIGURE OF HORSE LYING DOWN. (4) WOODEN FIGURE OF GRIFFIN.
(5) WOODEN HEAD OF AN ANIMAL. (6) WOODEN HEAD OF AN ANIMAL.
(FROM THE GREAT TUMULUS.)



FIG. 3.—WOODEN HEAD OF AN ANIMAL (FIG. 2—(5)).
(FROM THE GREAT TUMULUS.)

ANTIQUITIES OF KATANDA (ALTAI).



FIG. 1.—WOODEN PLAQUE WITH BEAR ATTACKING A STAG. (½)
(FROM THE GREAT TUMULUS.)

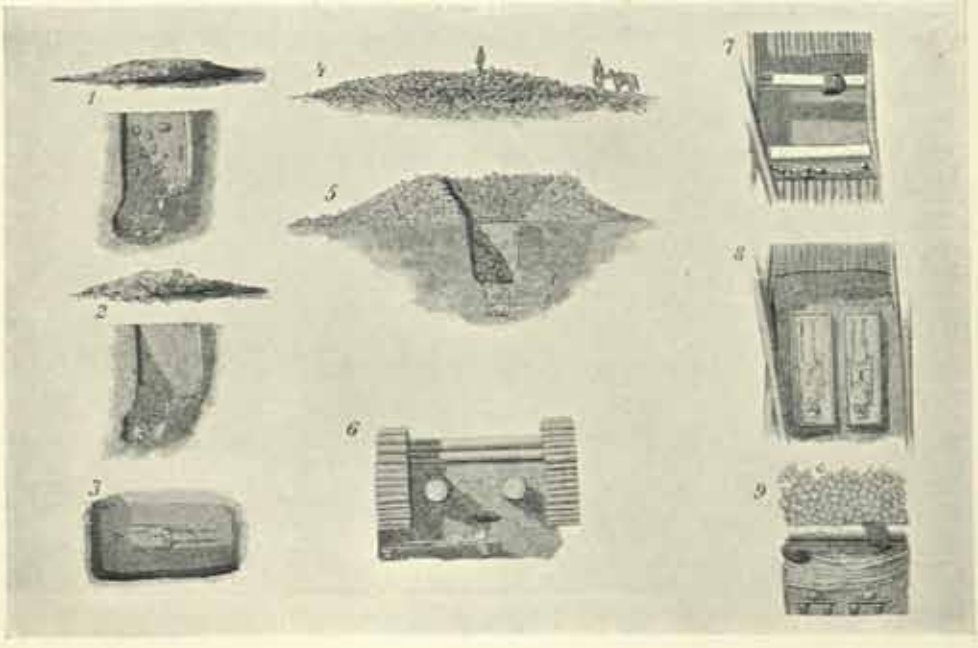


FIG. 2.—SECTIONS OF KATANDA GRAVES
(FROM RADLOFF, "AUS SIBIRIEN," BD. II., TAFEL 6).

ANTIQUITIES OF KATANDA (ALTAI).

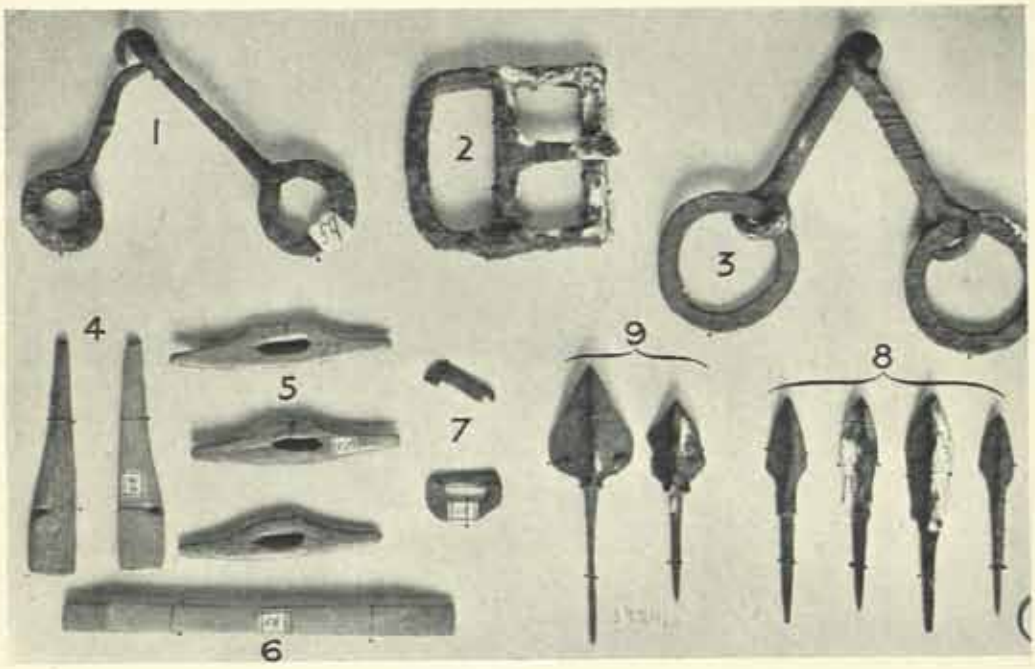


FIG. 1.—OBJECTS FROM KATANDA, FIRST SMALL KURGAN (*see* p. 57).

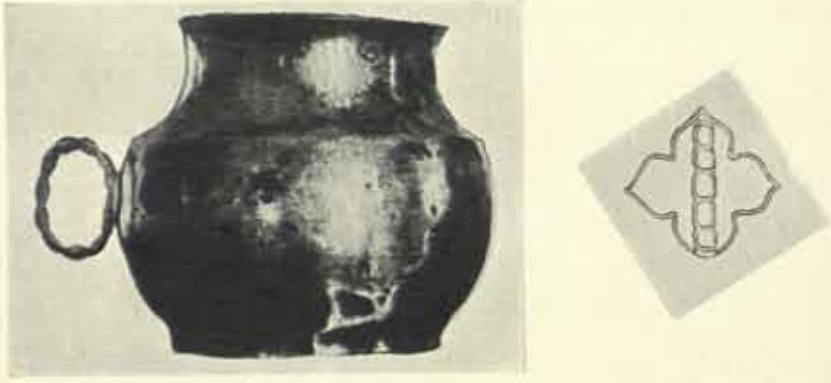


FIG. 2.—SILVER VESSEL AND DRAWING OF HANDLE.



FIG. 3.—INSCRIPTION ON BOTTOM OF VESSEL SHOWN IN FIG. 2.

ANTIQUITIES OF KATANDA (ALTAI).

PLATE X.

Fig. 1.—1. "Dress-coat" covered with silk stuff and lined with sable. (No. R. 71A = R.M. 3438.) 2. Kaftan of ermine fur. (No. R. 71B = R.M. 3439.) 3. So-called breast-piece. (No. R. 71C = R.M. 3438.)

Fig. 2.—Back views of 1 and 2 above. (For detail of kaftan *see* Text-fig. 1.)

PLATE XI.

Fig. 1.—A wooden saucer, carved with animals. (No. R. 63 = R.M. 3429.)

Fig. 2.—Outline drawing of the carving.

PLATE XII.

Fig. 1.—Wooden figures of standing horses, two with the heads turned full face. (No. R. 67 = R.M. 3433.)

Fig. 2.—The horse in Fig. 1, 3, showing detail.

PLATE XIII.

Fig. 1.—Wooden figure of horse lying down.

Fig. 2.—3. Wooden figure of horse lying down. 4. Wooden figure of griffin. (No. R. 70 = R.M. 3437.) 5 and 6. Wooden head of an animal. (No. R. 68 = R.M. 3435.)

Fig. 3.—Another view of Fig. 2—5, on larger scale.

Fig. 4.—Wooden plate carved with head of bull or elk, fastened to a strap as a clasp. (No. R. 66 = R.M. 3434.)

PLATE XIV.

Fig. 1.—Wooden plaque showing bear attacking a stag. (No. R. 64 = R.M. 3430.)

Fig. 2.—Sections of Katanda kurgans. (Radloff, *Aus Sibirien*, Bd. II., Tafel 6, p. 104.)

First Small Kurgan.

PLATE XV.

Fig. 1.—1. Iron horse-bit. (No. R. 49 = R.M. 3419.) 8. Four trihedral iron arrow-heads with tangs. (No. R. 55 = R.M. 3423.) (*See* below for other objects.)

Fig. 2.—Silver vessel. (No. R. 48 = R.M. 3418) and outline of handle and plate. (Smirnov, *Oriental Silver Plate*, Pl. XCII, Fig. 169.)

Fig. 3.—Inscription on bottom of above vessel. (Melioranski, *Trans. Imp. Russ. Arch. Soc., Or. Sect.*, XV, i. Pl. II, pp. 034–036.)

Third Small Kurgan.

PLATE XV.

Fig. 1.—6. Oblong strip of bone. (No. R. 56 = R.M. 3425.) 5. Three bone implements for fastening horses. (No. R. 57 = R.M. 3426.) 7. Bone buckle. (No. R. 61 = R.M. 3428.)

Fourth Small Kurgan.

PLATE XV.

Fig. 1.—9. Two iron arrow-heads. (No. R. 62 = R.M. 3424.)

TEXT-FIGURES.

Fig. 1.—Detail of Kaftan, *cf.* Pl. X, Figs. 1 and 2.

Fig. 2.—Silk stuff. (No. R. 71E, 6, 7 = R.M. 2440.) Reconstruction of design.

Fig. 3.—Iron spade or plough-share. (No. R. 57 = R.M. 3442.)

THE DYFI BASIN: A STUDY IN PHYSICAL ANTHROPOLOGY AND DIALECT DISTRIBUTION.

By Iorwerth Cyfeiliog Peate, M.A.

The Dyfi Basin comprises a large area of Western Montgomeryshire, a portion of South Western Merionethshire and a part of North Cardiganshire. The river waters an area extending from the Talerddig Pass in Montgomeryshire to the sea at Aber Dyfi. In its first section, it is a stream of foamy torrents and rushing waters which descends into the narrow vale of Mawddwy. The vale of Mawddwy is several miles long, and "so contracted as scarcely to admit a meadow at the bottom. Its boundaries are vast hills, generally very verdant and fine sheep-walks. . . . There is a beauty in this vale which is not frequent in others of these mountainous countries. The inclosures are all divided by excellent quickset hedges, and run far up the sides of the hills" which are in all cases very steep. The summits of the hills expand in a dreary, rust-coloured waste of bog and heath which are the source of fuel, in the form of peat, to many of the inhabitants of the vale below. This glen of the upper Dyfi is a country of strange awe and mysteries. That feeling of isolation and fear which is natural to the dweller in high places grows upon one as one enters the narrow glen, with the frowning precipices on both sides. The meeting place of the folk of this isolated valley of Mawddwy is the village of Llan ym Mawddwy, a quiet, quaint, old-world nook in the fastnesses of the Merionethshire mountains.

From the vale of Mawddwy, the Dyfi Valley opens out into a region which retains the beauty of the upper glen, but shorn of the awe and majesty which makes the isolation and grandeur of Mawddwy oppressive to the sensitive mind. This is the region of Dinas Mawddwy, Mallwyd, Cwmllinau and Cemmaes, a region not of rugged and terrible grandeur but of mellow beauty, of broad meadows and well-cultivated fields bearing crops of golden corn in their season; and the difference between Cemmaes and Mawddwy is similar to that which, as Renan has described, the traveller experiences in leaving France to enter Brittany.

About a mile below the village of Cemmaes, the river Dyfi is joined by its one important headstream-tributary, the Twymyn which flows from the wild inaccessible glens, the well-wooded slopes and the heather-covered hills of the parish of Llan bryn Mair. From the confluence the Dyfi flows in the direction of the small town of Machynlleth, below which its basin opens out to form the broad estuary which bears its name. On the northern side the yellow sands of Aber Dyfi stretch far in the direction of the Merionethshire coast; on the southern, are the beautiful woods of Glan Dyfi and the brown heathland of North Cardiganshire. In no part is the basin wide; above Machynlleth, which is only nine miles from the sea, it is

barely three-eighths of a mile in width. The area around this town is that of a much-dissected plateau in which the Dyfi and its tributaries are deeply incised. On the north of the lower Dyfi are the high mountain ridges of Merioneth, with Cader Idris conspicuous above all others; to the south and south-east, Plynlymon and its many hills, the home and nursery of old things and old customs, old traditions and old types. To the north-east, Aran Fawddwy, and its fellow Aran Benllyn extending to meet the high tableland of Garnedd wen and the Llan bryn Mair moorlands; and in the extreme east, the Talerddig divide, the watershed between Dyfi and Severn, the boundary between things Welsh and things English, the great barrier to invasion from the Saxon east.

Thoroughly to understand the complexities of this region of mid-Wales, one must sketch briefly its peculiar associations. This district of the Dyfi has always been a region set apart from its neighbours; in tribal days, it was Cyfeiliog, and to-day it is in many ways a separate unit in the scheme of things—a barrier and a boundary between North and South, a fortress and a haven against the hordes of the East, a district neither definitely "North" nor characteristically "South," yet having the excellencies of each, and perhaps manifesting defects peculiar to both—a land singularly complete and independent, and yet, as will be seen, definitely heterogeneous. The vale of Mawddwy, before the advent of the railway with its too slavish concomitant homage to things English, was monoglot Welsh, and even to-day it fears no great material intrusion of alien influences from any direction. Its three northern gateways all open upon districts as Welsh as itself, and its southern gate, the Dyfi valley itself, is guarded upon the east by the truly Cymric Llan bryn Mair. Mawddwy has ever been a region where Welsh tradition has been safe and invincible, but sufficiently in contact with both North and South to maintain that tradition definite and alive. On the other hand, Llan bryn Mair, the region of the southern headstream, is not in a district safe for Welsh culture and tradition. Its one great pass, that of Talerddig, opens out into the land of Severn—a valley along which the Saxon finds and has found it easy to advance. It is a valley which has been throughout the ages the scene of successive swelling waves of invasions into the heart of Cambria. Up along the Severn and its tributaries, such as the Carno, the authority of Montgomery spread westwards, succeeding in passing through the pass at the head of the Carno (and so manifesting the insecurity of Llan bryn Mair) and extending its sway right down to the focus at the western end, which is Machynlleth. The pass of Talerddig has, therefore, been of paramount importance in the history of the Dyfi Basin. It is the boundary between things Welsh and English. With the persistent pacific tyranny of oncoming English manners and customs, it made the region of the Twymyn, *i.e.*, Llan bryn Mair, the eastern hill-fortress of Welsh tradition and language in mid-Wales, just safe on the Welsh side of the language boundary, but at the same time feeling its frontier position. It thus possesses the frontier spirit—as contrasted with the safer Mawddwy—and so awakened very early to the

need for the defence of Welsh tradition, a fact well illustrated in its history. The fear of the Severn is strong in its conscience.

The southern side of the Dyfi Basin includes much of the Plynlymon moorlands. It is a district effectively cut off from all communication with the outer world, and so it has remained a nest of old types and old things. The people are quiet and reserved, great thinkers and philosophers of their kind, leaven in the life of Wales from time immemorial. Machynlleth, on the northern edge of the moorland where the way opens westwards to Cardiganshire, is the gateway to North and South at the head of the estuary which up to this point has always been impassable. It is the centre of administrative authority in western Montgomeryshire, the focus of authority in Cyfeiliog; Mawddwy opens out upon it, it has access to Llan bryn Mair and the North Plynlymon villages, and from it opens the northern valley of Corris to Merionethshire, a valley which with the neighbouring Mawddwy forms the northern region of the Dyfi Basin.

I.

The dialect of the Dyfi Basin is fairly uniform in all regions in matters of vocabulary and morphology. There are, of course, slight differences which await study, but it is from the standpoint of phonology that the dialect definitely resolves itself into two well-defined types. The late Mr. Thomas Darlington, M.A., Ex-Inspector of Schools, was the first to pay any close attention to the phonological differences which are exemplified in the Dyfi Basin,[1] although it transpires, from a correspondence not yet published between the late Sir John Rhys, Principal of Jesus College, Oxford, and Canon Silvan Evans, the great Welsh lexicographer and first Professor of Welsh in the University College, Aberystwyth, that the far-sighted Principal of Jesus College had considered the problem as far back as the 'eighties of the last century.[2]

My method in the study of the dialects has been similar to that of Prof. O. H. Fynes-Clinton[3] of Bangor, and of Alf Sommerfelt, Esq., D.-ès-L., of Oslo.[4 5] I am greatly indebted to Dr. Sommerfelt for allowing me access to the results of his researches in the dialect of the parish of Llan bryn Mair, which will be published shortly, I hope, in book form; to him also I am indebted for valuable instruction in methods of phonological research.

From the standpoint of phonology the Dyfi Basin resolves itself into two regions, which impinge upon one another along a line which runs parallel to the

[1] Darlington, T. "Some Dialectal Boundaries in Mid-Wales, with notes on the history of the Palatalization of the long "a." See the *Transactions of the Cymmrodorion Society*, 1900–1.

[2] I have to acknowledge my indebtedness to Principal J. H. Davies, M.A., University College of Wales, Aberystwyth, for drawing my attention to this correspondence, and allowing me access to it.—I.C.P.

[3] *The Welsh Vocabulary of the Bangor District.*

[4] *Le Breton parlé à Saint-Pol-de-Leon.*

[5] *The Dialect of Torr, Co. Donegal.*

river, on its northern side, from the direction of Aber Gynolwyn to Esgair-geiliog, and thence it follows the watershed of Ffridd Bwlch lluan, Ffridd Cae'r Felin and Mynydd Du to the village of Aber Angell, where it crosses the Dyfi to the watershed between Cwm Tafolog and Cwm Nantcarfan. This boundary divides the districts of Corris-Aberllefenni and Mawddwy from those of Llan bryn Mair, Cemmaes, Machynlleth and the North Plynlymon moorland villages, and I shall henceforth in this paper refer to the one district as "north" and the other as "south." From a detailed study of the dialects I find that (*a*) while the dialect of the whole basin is very uniform, yet there are phonological differences which are really fundamental in their importance. They are :—

(i) The difference between the vowel-sounds *i*, *ï* and *y*. The north has a high-front-narrow round vowel, very similar to the vowel in French *pur*. It is not found in the south, where it is displaced by the half-open *i*, e.g., south *hidig*, but north *hyđyg* (soot, *huddygl*) ; south *ti*, but north *ty* (house, *ty*). An interesting sound which is found in the south is that of *ï*, which is perhaps not so much a proper mixed vowel as a retracted *i*, midway between the ordinary *i* and a high-mixed-narrow sound. In some instances only it takes the place of the northern *y* sound, e.g., *pïrjon* (well enough, *purion*) ; *fïrđ* (roads, *ffyrdd*). This sound is usually found in the northernmost parts of the south region.

(ii) The difference between *Xw* and *w(h)*. *X* is the voiceless guttural spirant formed through the back of the tongue being raised against the soft palate. The friction is very strong, and the consonant is very strongly articulated. As an initial sound it is uniform in the north, but varies greatly in the south, where it is totally absent in many cases. Indeed, it can be stated that the general rule in the south is to drop initial *Xw* altogether, but when initial *Xw* appears intervocalically in a group of words it is retained to some extent, as it is also in certain unusual and rarely used words, though here the sound is weakened and even lost in some instances. In the north it is always present ; *e.g.*, north *Xwæ : ir*, but south *whæ : ir* (sister, *chwaer*), &c.

(iii) There is a definite difference in the degree of palatalization in the two regions. Whereas *k* and its mutated forms, initially, becomes *k'*, &c., before certain vowels in the south in certain instances, it is palatalized to a far higher degree in the north, and the palatalized form is found initially very frequently indeed. Palatalization is much more frequent in the north generally than it is in the south.

(*b*) It was found that the region thus divided into two zones from dialectal considerations is, taking the same boundaries, equally interesting from an anthropological point of view.

II.

"The progress of anthropometrical survey in Wales," states Prof. Fleure,[1] "has revealed marked local differences in the constitution of the population, in spite of the fact that every locality possesses several types living side by side, making study by methods of averaging comparatively valueless." The research described on the following pages is based upon measurements of as many individuals as possible whose ancestors for generations were natives of the Dyfi Basin. The ancestry of each individual measured is, therefore, definitely local, and the more remote mountain regions where old traditions have remained and where a tradition of property and of tenancy has been handed down from father to son with a very evident sense of pride through countless generations, proved very rich in specimens. Very many of the people measured can trace their ancestry back several hundreds of years.

My conclusions are based primarily upon measurements taken of the male natives of the district, since detailed differences of type are better accentuated and more definite in men than in women. The anthropometric survey of the male native population of the Dyfi Basin is, therefore, as thorough as was possible, the survey extending from December, 1922, to February, 1924. At the same time I have made a less complete but quite representative survey of the female native population. In the Mawddwy district this also is complete, care having been taken to include every possible individual in Llan ym Mawddwy, for example, and though the conclusions are not based on the results of this supplementary survey, yet the statistics are adduced to show that this survey of the female natives strengthens my conclusions in every way. The methods adopted in the survey are similar to those adopted by Prof. H. J. Fleure,[2] and to him I am indebted for guidance and invaluable help at all times.

Details of place, sex and age, ancestry on both sides, nature of the skin, eye, hair, lips and ears, together with the head contour were entered upon a separate card for each individual. On the same card were entered measurements in metres of the head length and breadth, bizygomatic, bigonal and frontal breadth, the length of face and height of forehead, the length and breadth of the nose, the auriculo-nasal and auriculo-alveolar radii, maximum head circumference, auricular height, standing height, length of arm and leg. One card of this nature was filled for every individual measured, and 180 men and 66 women were thus catalogued. The cephalic indices were determined and each individual represented on a map. My purpose was not to hold that because the people of a certain district are predominantly of a certain racial type they speak a certain dialectal form of the Welsh language or *vice versa*, but, on the contrary, to show that in two regions of the same river basin are found differences of dialect, and that in each of these two regions

[1] *J.R.A.I.*, 1920, p. 12.

[2] *J.R.A.I.*, 1916, p. 42 *et seq.*

there is a predominance of different racial types, which goes to prove that though neither factor may ultimately decide the other, yet there is a definite correlation between physical anthropology and dialect distribution in the district.

Analysis of Observations.

(i) *Cephalic Indices.*

(*a*) The Dyfi Basin as one region.

Men and Women.

Cephalic Index.	Percentages.	
	Men.	Women.
Under 73	6·2	0
73 to 73·9	1·1	1·5
74 to 74·9	3·3	3·1
75 to 75·9	12·2	1·5
76 to 76·9	10·6	3·1
77 to 77·9	18·8	10·6
78 to 78·9	11·7	12·0
79 to 79·9	12·8	10·6
80 to 80·9	7·3	15·1
81 to 81·9	3·8	13·5
82 to 82·9	5·6	9·2
83 to 83·9	2·8	10·6
84 and over	3·8	9·2
	100·0	100·0
Total No. of cases	180	66

(*b*) The Dyfi Basin divided into two regions.

Men.

Cephalic Index.	Percentages.	
	North.	South.
Under 73	0	9·4
73 to 73·9	0	1·7
74 to 74·9	3·2	3·5
75 to 75·9	9·3	13·8
76 to 76·9	6·4	12·9
77 to 77·9	15·6	20·6
78 to 78·9	10·9	12·2
79 to 79·9	15·6	11·2
80 to 80·9	12·5	4·3
81 to 81·9	7·8	1·7
82 to 82·9	9·3	3·5
83 to 83·9	4·7	1·7
84 and over	4·7	3·5
	100·0	100·0

Women.

Cephalic Index.	Percentages.	
	North.	South.
Under 73	0	0
73 to 73·9	0	3·1
74 to 74·9	0	6·3
75 to 75·9	0	3·1
76 to 76·9	2·9	3·1
77 to 77·9	5·8	15·6
78 to 78·9	11·8	12·5
79 to 79·9	14·7	6·3
80 to 80·9	14·7	15·6
81 to 81·9	8·9	18·7
82 to 82·9	14·7	3·1
83 to 83·9	14·7	6·3
84 and over	11·8	6·3
	100·0	100·0

Grouped totals :—

MEN.

Cephalic Index.	Percentages.	
	North.	South.
Under 75	3·2	14·6
75 to 79·9	57·8	70·7
80 and over	39·0	14·7
	100·0	100·0
Total No. of cases	64	116

WOMEN.

Cephalic Index.	Percentages.	
	North.	South.
Under 77	2·9	15·6
77 to 81·9	55·9	68·7
82 and over	41·2	15·7
	100·0	100·0
Total No. of cases... ...	34	32

(ii) *Stature.*

(*a*) The Dyfi Basin as one region.

MEN AND WOMEN.

Height in millimetres.	Percentages.	
	Men.	Women.
Under 1400	0	0
1400 to 1449	0	0
1450 to 1499	0	4·5
1500 to 1549	2·8	18·2
1550 to 1599	5·6	48·4
1600 to 1649	12·3	18·2
1650 to 1699	23·4	9·1
1700 to 1749	32·5	1·6
1750 to 1799	18·9	0
1800 and over	4·5	0
	100·0	100·0

(*b*) The Dyfi Basin divided into two regions.

MEN.

Height in millimetres.	Percentages.	
	North.	South.
Under 1500	0	0
1500 to 1549	3·2	2·6
1550 to 1599	6·3	5·2
1600 to 1649	7·8	14·6
1650 to 1699	20·3	25·0
1700 to 1749	40·6	28·5
1750 to 1799	21·8	17·2
1800 and over	0	6·9
	100·0	100·0

WOMEN.

Height in millimetres.	Percentages.	
	North.	South.
Under 1400	0	0
1400 to 1449	0	0
1450 to 1499	5·8	3·1
1500 to 1549	20·6	15·6
1550 to 1599	41·3	56·2
1600 to 1649	26·5	9·5
1650 to 1699	5·8	12·5
1700 and over	0	3·1
	100·0	100·0

Grouped totals :—

Men. Height in millimetres.	Percentages. North.	Percentages. South.	Women. Height in millimetres.	Percentages. North.	Percentages. South.
Under 1600	9·5	7·8	Under 1500	5·8	3·1
1600 to 1799	90·5	85·3	1500 to 1649	88·4	81·3
1800 and over	0	6·9	1650 and over	5·8	15·6
	100·0	100·0		100·0	100·0

(iii) *Analysis of Measurements.*

Men.—North.

No.	Age.	Head length.	Head breadth	Index.	Stature.	Map letter.
1 ...	23	200	148	74·0	1740	*d*
2 ...	Adult	194	145	74·7	1630	D
3 ...	44	200	150	75·0	1700	E
4 ...	33	208	156	75·0	1790	*e*
5 ...	32	200	150	75·0	1725	*E*
6 ...	Adult	213	160	75·1	1755	*e*
7 ...	Adult	203	153	75·3	1740	*E*
8 ...	Adult	201	152	75·6	1505	E
9 ...	45	204	155	76·0	1710	*F*
10 ...	49	201	153	76·1	1735	F
11 ...	21	187	143	76·4	1680	*f*
12 ...	46	196	150	76·5	1790	*f*
13 ...	Adult	188	145	77·1	1760	*G*
14 ...	28	190	147	77·3	1750	*g*
15 ...	64	194	150	77·3	1775	*g*
16 ...	51	198	153	77·3	1700	*g*
17 ...	54	195	151	77·4	1715	*g*
18 ...	Adult	195	151	77·4	1750	*g*
19 ...	56	192	149	77·6	1560	*g*
20 ...	36	201	156	77·6	1690	*G*
21 ...	30	198	154	77·7	1685	*g*
22 ...	21	190	148	77·9	1720	*g*
23 ...	21	191	149	78·0	1670	*h*
24 ...	62	200	156	78·0	1670	*h*
25 ...	21	197	154	78·1	1500	*h*
26 ...	47	189	148	78·1	1625	*H*
27 ...	37	200	157	78·5	1790	*h*
28 ...	43	188	148	78·7	1675	*h*
29 ...	50	194	153	78·9	1715	*h*
30 ...	40	200	158	79·0	1690	*j*
31 ...	52	190	150	79·0	1705	*J*
32 ...	21	200	158	79·0	1635	*J*
33 ...	Adult	190	150	79·0	1590	*j*
34 ...	47	196	155	79·1	1645	*j*
35 ...	68	202	160	79·2	1675	J
36 ...	27	188	149	79·2	1650	*j*

Men.—North—*continued.*

No.	Age.	Head length.	Head breadth	Index.	Stature.	Map letter.
37 ...	40	198	157	79·3	1700	*j*
38 ...	Adult	186	148	79·6	1620	x
39 ...	48	196	156	79·6	1700	J
40 ...	66	190	152	80·0	1740	R
41 ...	27	200	160	80·0	1705	*k*
42 ...	56	195	156	80·0	1750	*K*
43 ...	Adult	197	158	80·0	1680	*K*
44 ...	69	208	167	80·3	1710	*k*
45 ...	40	204	164	80·4	1690	*K*
46 ...	28	197	158	80·5	1670	*k*
47 ...	21	182	147	80·7	1575	K
48 ...	40	192	156	81·2	1690	*L*
49 ...	34	192	156	81·2	1705	l
50 ...	Adult	197	160	81·2	1730	*l*
51 ...	37	190	155	81·6	1780	*l*
52 ...	55	188	154	81·9	1790	*l*
53 ...	58	200	164	82·0	1760	*m*
54 ...	69	200	164	82·0	1730	*m*
55 ...	25	195	160	82·1	1750	*m*
56 ...	Adult	197	162	82·2	1780	*m*
57 ...	21	188	155	82·3	1660	*m*
58 ...	32	194	160	82·5	1715	*m*
59 ...	21	190	158	83·2	1745	*N*
60 ...	61	192	160	83·3	1735	*n*
61 ...	31	189	158	83·6	1725	*n*
62 ...	50	190	160	84·2	1700	*p*
63 ...	Adult	192	163	84·8	1725	*p*
64 ...	46	193	168	87·0	1745	*p*

Men.—South.

1 ...	44	205	126	61·5	1755	*a*
2 ...	Adult	194	130	67·0	1600	*a*
3 ...	54	208	145	69·7	1880	*A*
4 ...	69	204	145	71·1	1740	*a*
5 ...	45	197	141	71·6	1530	*a*
6 ...	48	203	146	71·9	1860	*A*
7 ...	56	202	146	72·3	1810	*A*
8 ...	Adult	210	152	72·4	1690	*A*
9 ...	34	206	150	72·8	1700	*a*
10 ...	31	196	143	72·9	1665	*A*
11 ...	50	196	143	72·9	1690	*a*
12 ...	27	204	149	73·0	1700	*B*
13 ...	30	191	141	73·8	1670	*b*
14 ...	Adult	205	152	74·1	1625	*d*
15 ...	63	195	145	74·3	1660	*d*
16 ...	66	196	146	74·5	1625	*D*
17 ...	35	204	158	74·5	1675	*d*
18 ...	Adult	200	150	75·0	1725	*E*
19 ...	41	200	150	75·0	1725	*e*
20 ...	Adult	200	150	75·0	1830	*E*
21 ...	59	200	150	75·0	1780	*e*
22 ...	56	201	151	75·1	1690	E
23 ...	21	194	146	75·2	1575	*e*
24 ...	64	195	150	75·3	1650	*E*
25 ...	Adult	195	147	75·3	1675	E
26 ...	Adult	203	153	75·4	1625	*E*
27 ...	21	200	151	75·5	1765	*e*
28 ...	24	202	153	75·7	1730	*e*

MEN.—SOUTH—*continued.*

No.	Age.	Head length.	Head breadth	Index.	Stature.	Map letter.
29	16	194	147	75·7	1645	e
30	53	190	144	75·8	1700	r
31	21	195	150	75·8	1650	*e*
32	Adult	195	148	75·9	1590	*E*
33	52	200	152	76·0	1725	*F*
34	55	208	158	76·0	1735	x
35	53	200	152	76·0	1690	F
36	67	199	151	76·0	1650	*f*
37	69	205	156	76·1	1760	*f*
38	Adult	193	147	76·2	1620	x
39	52	195	149	76·4	1740	*f*
40	Adult	179	137	76·5	1640	*F*
41	23	214	164	76·6	1870	*f*
42	Adult	202	155	76·7	1690	*F*
43	Adult	202	155	76·7	1755	*F*
44	50	202	155	76·7	1640	*f*
45	63	190	146	76·8	1660	*f*
46	23	190	146	76·8	1725	*f*
47	60	195	150	76·9	1780	*F*
48	21	200	154	77·0	1530	g
49	29	200	154	77·0	1630	*g*
50	63	204	157	77·0	1780	*g*
51	55	200	154	77·0	1750	*g*
52	Adult	192	148	77·1	1640	*G*
53	52	192	148	77·1	1740	G
54	24	202	156	77·2	1685	*g*
55	Adult	198	153	77·3	1590	*g*
56	55	194	150	77·3	1740	*g*
57	22	186	144	77·4	1500	*G*
58	Adult	190	147	77·4	1625	*G*
59	32	200	155	77·5	1765	r
60	34	200	155	77·5	1690	*G*
61	67	200	155	77·5	1805	*G*
62	20	196	152	77·5	1700	*g*
63	26	192	149	77·6	1625	*g*
64	Adult	193	150	77·7	1650	*G*
65	61	206	160	77·7	1800	*g*
66	53	206	160	77·7	1780	*G*
67	47	198	154	77·7	1725	*g*
68	48	198	154	77·7	1675	*G*
69	33	194	151	77·8	1725	*G*
70	Adult	190	148	77·9	1605	g
71	Adult	195	152	77·9	1650	*G*
72	53	200	156	78·0	1750	*H*
73	65	206	162	78·1	1705	*H*
74	48	196	153	78·1	1685	*h*
75	Adult	210	164	78·1	1690	*h*
76	Adult	187	146	78·1	1635	*h*
77	46	192	150	78·1	1730	*H*
78	Adult	204	160	78·4	1780	r
79	Adult	190	149	78·4	1720	H
80	Adult	195	153	78·6	1725	*h*
81	Adult	193	152	78·7	1665	*h*
82	30	193	152	78·7	1725	*H*
83	Adult	184	145	78·8	1665	*H*
84	40	189	149	78·9	1560	*h*
85	19	199	157	78·9	1740	*h*
86	Adult	200	158	79·0	1760	*J*
87	22	191	151	79·1	1715	*J*

Men.—South—*continued.*

No.	Age.	Head length.	Head breadth.	Index.	Stature.	Map letter.
88 ...	28	202	160	79·2	1700	*J*
89 ...	65	208	165	79·3	1755	*j*
90 ...	Adult	193	153	79·3	1700	*J*
91 ...	Adult	193	153	79·3	1750	*j*
92 ...	52	194	154	79·4	1710	*j*
93 ...	46	201	160	79·6	1670	*j*
94 ...	16	178	142	79·7	1550	*j*
95 ...	38	198	158	79·8	1775	*j*
96 ...	Adult	183	146	79·8	1575	*J*
97 ...	Adult	194	155	79·9	1665	*j*
98 ...	Adult	194	155	79·9	1780	*j*
99 ...	65	200	160	80·0	1700	*k*
100 ...	56	195	156	80·0	1745	K
101 ...	32	180	145	80·6	1635	R
102 ...	30	192	155	80·7	1700	*k*
103 ...	57	198	160	80·8	1815	*k*
104 ...	68	188	152	80·9	1715	*k*
105 ...	16	180	146	81·1	1625	*L*
106 ...	Adult	186	152	81·7	1560	*L*
107 ...	45	189	155	82·1	1615	x
108 ...	24	201	166	82·6	1790	*m*
109 ...	38	197	163	82·7	1710	*m*
110 ...	65	191	158	82·7	1750	x
111 ...	Adult	194	161	83·0	1665	*n*
112 ...	58	195	162	83·1	1685	*N*
113 ...	61	194	164	84·5	1750	*P*
114 ...	30	196	166	84·7	1760	*P*
115 ...	62	192	163	84·9	1685	P
116 ...	67	192	164	85·4	1730	P

Women.—North.

1 ...	64	195	150	76·9	1575	*f*
2 ...	50	180	139	77·2	1515	*g*
3 ...	60	202	157	77·7	1575	*G*
4 ...	38	184	144	78·2	1645	*H*
5 ...	42	186	146	78·5	1650	*h*
6 ...	Adult	192	151	78·6	1595	*h*
7 ...	61	187	147	78·7	1600	*h*
8 ...	33	189	150	79·4	1635	*j*
9 ...	16	190	151	79·5	1580	*J*
10 ...	32	190	151	79·5	1595	*j*
11 ...	26	186	148	79·6	1575	*J*
12 ...	61	188	150	79·8	1605	*j*
13 ...	Adult	175	140	80·0	1575	*K*
14 ...	62	190	153	80·5	1695	*k*
15 ...	42	180	145	80·5	1550	*K*
16 ...	32	190	153	80·5	1640	*k*
17 ...	52	181	146	80·6	1530	*K*
18 ...	38	190	154	81·1	1590	*l*
19 ...	30	192	156	81·3	1520	*l*
20 ...	48	190	155	81·6	1630	*l*
21 ...	37	183	150	82·0	1575	*m*
22 ...	16	184	151	82·1	1535	*M*
23 ...	28	180	148	82·2	1470	*m*
24 ...	68	187	154	82·3	1460	*m*
25 ...	25	182	150	82·4	1550	*m*
26 ...	28	186	155	83·3	1610	*n*

WOMEN.—NORTH—*continued.*

No.	Age.	Head length.	Head breadth.	Index.	Stature.	Map letter.
27 ...	53	192	161	83·3	1630	*n*
28 ...	37	181	151	83·4	1550	*n*
29 ...	53	183	151	83·6	1560	*n*
30 ...	32	190	159	83·7	1630	*n*
31 ...	50	181	152	84·0	1560	*p*
32 ...	43	185	156	84·3	1560	*p*
33 ...	50	187	158	84·8	1590	*p*
34 ...	17	184	158	85·9	1520	*p*

WOMEN.—SOUTH.

1 ...	42	190	140	73·7	1570	*b*
2 ...	Adult	188	139	74·0	1675	*D*
3 ...	Adult	193	143	74·1	1550	*d*
4 ...	69	185	140	75·5	1540	*e*
5 ...	52	192	146	76·0	1560	*f*
6 ...	19	192	148	77·1	1580	*G*
7 ...	61	194	151	77·3	1555	*g*
8 ...	53	190	147	77·4	1665	*g*
9 ...	51	192	149	77·6	1585	*g*
10 ...	Adult	188	146	77·6	1535	*g*
11 ...	Adult	196	153	78·0	1480	H
12 ...	33	187	146	78·1	1535	H
13 ...	40	180	141	78·3	1665	*h*
14 ...	46	190	150	78·9	1730	*H*
15 ...	50	199	158	79·4	1590	*j*
16 ...	63	188	150	79·8	1565	R
17 ...	64	190	152	80·0	1640	*k*
18 ...	34	184	148	80·4	1540	*k*
19 ...	50	180	145	80·5	1550	*k*
20 ...	42	187	151	80·7	1570	*k*
21 ...	44	183	150	80·8	1560	*k*
22 ...	60	187	152	81·3	1510	L
23 ...	33	188	153	81·4	1585	*l*
24 ...	38	184	150	81·5	1555	*l*
25 ...	59	196	160	81·6	1575	*L*
26 ...	48	186	152	81·7	1575	*l*
27 ...	62	188	154	81·9	1555	*l*
28 ...	17	185	152	82·2	1615	x
29 ...	51	182	151	83·0	1630	*n*
30 ...	54	186	155	83·3	1650	N
31 ...	32	183	154	84·1	1570	*p*
32 ...	58	182	158	85·8	1560	*p**
...						

III.—CONCLUSIONS.

(*a*) An examination of the above statistics will reveal several interesting facts.

(1) There is a much greater proportion of very narrow-headedness in the south than there is in the north. This fact applies to both men and women. 14·6 per cent. of the population of the south (males) are very narrow-headed, their cephalic indices being under 75, while 15·6 per cent. of the southern female population are

* For an explanation of "Map letter" as used in this column, *see* reference in *J.R.A.I.*, 1916.

very narrow-headed, their cephalic indices being under 77.[1] The north stands out in definite contrast: only 3·2 per cent. of the male population have cephalic indices below 75, and only 2·9 per cent. of the female population have cephalic indices below 77.

(2) Whereas narrow-headedness is very prominent in the south, broad-headedness is very characteristic of the north; for of its males 39 per cent. have cephalic indices of 80 and over, as contrasted with only 14·7 per cent. in the south. In the same way, 41·2 per cent. of the females in the north have indices of 82 and over, as contrasted with only 15·7 per cent. in the south.

(3) Although the average stature in the two regions is fairly similar, the actual statures are very different:—

(i) In the north 9·5 per cent. of the males are under 1,600 mm. in height; while there is not one male of a stature of 1,800 mm. or above in that region. In the south only 7·8 of the males are under 1,600 mm. in height, while there is a percentage of 6·9 above 1,800 mm. There are eight men over 1,800 mm. An analysis of their cases proves interesting:—

Five are connected with one Aberhosan family.

Two are connected with Llan bryn Mair.

One is connected with the Pennal-Derwen las district. (*See* on pp. 66, 67, 68, Nos. 3, 6, 7, 20, 41, 61, 65 and 103.)

Nos. 3, 6 and 7 are three brothers. They have dark hair and blue eyes with strongly marked brow ridges. The head length in each case is above 200. Two of them are prognathous. One is orthognathous. Their noses are not very broad; their faces are long and the cheek-bones strong. One is very high-headed. No. 65 is a cousin of the above three, and he and No. 20 have marked brow ridges. The indices of the above five are, respectively, 69·7, 71·9, 72·3, 75 and 77·7. They are therefore all dolichocephalous. The remaining three, 76·6, 77·5 and 80·8, have no marked brow ridges and are not connected with Aberhosan.

(ii) In the north 5·8 of the females are below 1,500 mm. in stature, as contrasted with 3·1 per cent. in the south. Similarly, 15·6 per cent. of the southern females are over 1,650 mm. in stature, as contrasted with 5·8 in the north.

(4) The north consists of two districts—those of Corris and Mawddwy—the one having at its head a moderately difficult pass to Merioneth, the other having at its head two very difficult passes (Bwlch Oerddrws and Bwlch-y-Groes) to Dolgelley and Bala respectively. An analysis shows that 54·5 per cent. of the male population

[1] In analysing the results, I have borne in mind that the average cephalic index of females is higher than that of males: I have therefore used 75 and 80 for men, and 77 and 82 for women. The same applies to the statistics of stature.

of Corris have indices of 80 and over, while 31 per cent. of the Mawddwy males have the same indices. This would seem to suggest that the Bala cleft broad-heads had an easier access to Corris than to Mawddwy, because of the passes.

(*b*) At first sight, to the superficial observer, this is not the region to base any study of the correlation of anthropology and dialects upon. Dr. Fleure has voiced a very real warning in his paper on "Ancient Wales": "It is to be hoped that those who take up the mapping of dialects will keep in mind the fact that the natural human units of antiquity were not the river basins but the moorlands. They should be prepared to find in a river basin not so much a unit *ab origine* as a fusion of tendencies coming valleywards from the moorlands roundabout, all affected subsequently, however, by influences coming in along the valleys. . . . The moorlands export men to the valleys, *i.e.*, there is much anthropological spread from the moorlands valleywards."[1] It is with a realization of the importance of this warning that this research has been attempted; but not only do its results prove Dr. Fleure's statement in every way, but also its range has been wide enough to include the surrounding moorland slopes as well as the valley bottom itself. It has revealed not "a unit *ab origine*," but different elements "coming valleywards"—the exportation from north and south of anthropological and dialectal types. The study in the anthropology of the Dyfi Basin shows that in the basin are found definite distributions of physical types, with a predominance of one type in the north and of another in the south. The study in the dialects of the same basin shows that on each side of the same boundary different sounds of speech predominate. In fact, here we have a forested basin, penetrated in early times from the bare mountain regions on the north and south, and the dialect distribution and the types distribution are undoubtedly related to these penetrations, and therefore to the same types of causes. The Dyfi Valley is a forested valley basin between the hills of Plynlymon on the south and those of Merioneth on the north, and these bare mountains have exported their men into the intermediate valley, and in that valley a fusion has been to some degree effected, for the dialect is to a large degree uniform throughout, and at the same time there is a certain uniformity of physical type (the largest percentage of the people being neither markedly brachy- nor dolichocephalic, neither very tall nor very short). But the fusion has not been complete, and so a line easily traceable along the length of the valley from east to west marks the boundary between definite differences in physical anthropology and phonological detail of dialects. The Plynlymon home of narrow-headedness and the Merioneth belt of broad-headedness have supplied men to the south and north of the basin, and so both distributions of speech and physical types are related to the same sort of causes, and provide a definite case of correlation.

[1] Fleure, H. J., "Ancient Wales—Anthropological Evidences." *Trans. Hon. Soc. Cymmrod.* 1915–16, pp. 141–2.

Finally, one would note that this penetration from north and south has resulted, in spite of differences of types and dialects, in a fusion of tendencies and ideals because of another and a later penetration from the east. In this valley were communities from north and south clearing a region which must have been for a long time uninhabitable, and both these elements from the mountains, whence "cometh the help" of Wales. Upon them swooped the tyrants of the east, fusing their forces before a common danger when the authority of Montgomeryshire succeeded in imposing itself upon the southern headwaters through the pass of Talerddig down to the focus at Machynlleth, leaving only a part of the northern headwaters, which is to-day part of Merionethshire. The realization of the possibility of this imposition of authority from the east gave to the valley a healthy vitality—a population fed and livened by the exportation from the hinterlands of types vitally important in the life of Wales, the conservators of its traditions, the defenders of its rights, and at the same time its great seers and idealists.

A FLINT CHIPPING FLOOR AT ABERYSTWYTH.

[With Plates XVI–XVII.]

By Roger Thomas, B.Sc., and E. R. Dudlyke, B.A.

An introductory note on the discovery of this chipping floor was made in *Archæologia Cambrensis*, ser. vi, vol. xii, April 1912, p. 211. The discovery was made in the summer of 1911 by Dr. O. T. Jones, Professor of Geology at the University College of Wales, Aberystwyth, in company with the senior writer of this paper. During 1911 and 1912 the latter paid frequent visits to the site of this chipping floor and collected a large number of relics which included, *inter alia*, flint cores, chips, flakes and knives of various sizes but not exceeding 3 inches in length; flint flakes retouched along one or both edges; pigmy flint points which generally assumed a triangular form; flint scrapers of various sizes and shapes, some of them of pigmy dimensions; two small rings; numerous pieces of rather coarse pottery, one of which has definite chevron marks,—most of the pottery, however, is glazed; numerous pieces of pipe-stems and old pipe-bowls; a few lumps of lead with a thick white coating of lead carbonate; about a hundred lead shot of various sizes, and a few pear-shaped drops of lead; numerous pot-boilers and a few elongated pebbles having the appearance of so-called "limpet scoops."

The relics found in 1911 and 1912 were revealed in the earth removed during the excavations which were then being made for the site of the new Isolation Hospital. This earth was thrown over the adjoining cliff into the sea, and the excavations were so far advanced at the time that the discovery was made, that it was impossible to tell to what extent the various relics referred to above were associated with each other in the undisturbed earth. The value of the finds was minimized owing to our ignorance of their association with each other; and without a knowledge of this association, if any, it was impossible to tell to what extent the various relics were coeval.

With the object, therefore, of throwing further light on this particular matter, it was proposed to undertake the systematic excavation of the undisturbed earth in the vicinity of the Hospital. The absence of the senior writer of this paper on Government duty in the East accounts for the inordinate delay in carrying out the projected excavations, and in compiling a more detailed report of these interesting finds.

Excavations were undertaken on a limited scale in the autumn of 1922, with the primary object of ascertaining, in so far as possible, the relative age of relics in flint and earthenware on this site. The work was undertaken under the ægis of the Board of Celtic Studies, which has been good enough to defray a substantial part of the expenses incurred during the excavations. Dr. H. J. Fleure, Professor of Geography and Anthropology at the University College of Wales, Aberystwyth, was frequently consulted throughout the excavations, and his approval was sought and obtained for all the work undertaken.

Site.

The site of this prehistoric chipping floor is to be found at the junction of the rivers Rheidol and Ystwyth immediately South of the town of Aberystwyth at the point represented by lat. 52° 20′ 21″ and long. 4° 4′ 15″.

The actual floor on which prehistoric man chipped his flints in this locality is the surface of a cliff the sea edge of which is 30 feet above O.D. Overlooking the "floor" at a distance of half a mile is the prominent natural feature of Pen Dinas (capped with earthworks probably of Romano-British age), which attains a height of 400 feet above O.D. The ground-level rises in stages between the "chipping floor" and the summit of Pen Dinas. The foot of the hill shows evidence of glaciation by the presence of boulder clay, of glacial gravel, and of scoriated summits of rock mounds.

The chipping floor, on more than one occasion, has been cut through in order to lay a railway siding to transport lead ore to the harbour; and, at a later date, to construct a bridge across the Ystwyth. Of the original "floor" not a fifth now remains undisturbed.

Of the original "floor" there now remain two prominent banks on the right and left sides respectively of the road leading to the bridge across the River Ystwyth from the village of Trefechan. For convenience and for purposes of reference these two banks have been designated "Harbour Bluff" and "Hospital Bluff" respectively. The Harbour Bluff rises to a height of about 10 feet above the road level. It is pear-shaped, 100 feet in length, and 36 feet in width at its broadest part. It is composed of narrow, much-contorted strata of grit and shale on which are superimposed glacial drift of variable depth followed by dark-red loam, which will henceforth be referred to as "rainwash." The glacial drift is barely perceptible towards the Eastern end of this Bluff, but as the bridge is approached it attains a considerable depth. The depth of the loam increases from about 30 cm. at the Eastern end of the Bluff to about 75 cm. at its Western extremity.

The Hospital Bluff shows no rocks exposed in either of the road cuttings. But on the seaward side of this Bluff the underlying rock is exposed at some metres depth below soil level. The rainwash overlying the drift in this Bluff is much deeper than in the Harbour Bluff. A conspicuous feature of the rainwash is its uniformly increasing depth as it approaches the edge of the cliff. The base of the rainwash stratum shows a definite and gradual fall towards the sea.

Source of Flint Nodules.

Flints are known to originate as nodules in chalk formations. But no chalk formations occur in Wales. Flint stones, generally of small dimensions, do, however, occur in two well-defined tracts on the mainland in Wales where they lie in the glacial gravel and boulder clay. These tracts are the Lleyn peninsula in Carnarvon and the greater part of Pembrokeshire. In addition, flint nodules commonly occur in the shingle beaches along the whole of the Welsh coast.

During the Ice Age the general direction of flow of the ice-cap developed in Wales was East and West at right angles to the main watershed. The ice that accumulated on non-Welsh slopes which now drain into the Irish Sea took a southward turn into St. George's Channel. This part of the ice cap carried rocks from the North of Ireland which included numerous flint nodules. This is believed to be the source of the flints now occurring in the shingle beaches and elsewhere in Wales. Wave action has sifted the drift deposited in the Irish Sea with the result that we now find a great variety of pebbles from many sources on the shingle beaches of West Wales. Amongst these pebbles may be found flint nodules in fair abundance. And it was these shingle beaches that furnished prehistoric man in Wales with the material in question.

The nodules to be found on these shingle beaches never attain to the size of the larger nodules extracted direct from chalk formations. Nodules exceeding 8 cm. in length are very rare, though exceptional specimens have been found to attain a length of 12 cm. The fractured nodules present a great variety of colours which include chalky white, semi-transparent grey, opaque grey, pink, honey-colour, brown, and black; but it is the greys that predominate. As might be expected in the case of stones subjected to wave action the degree of patination varies very considerably in the nodules collected on the storm beach. The texture of most of the nodules is very uneven; and, in general, the material is not well suited for the manufacture of implements. The heterogeneous texture of individual nodules necessitated the discarding of a considerable number of chips and flakes. In addition to flint, chert and chalcedony, both of which are of non-Welsh origin, were also used by the occupants of this chipping floor for the manufacture of artefacts.

The Excavations.

As already indicated, the main object of these excavations was to investigate the sequence of the soil formations of archæological interest on this site.

The minute dimensions of some of the finds previously made necessitated the devising of a method of handling the excavated earth which would reduce the risk of missing the smaller and less conspicuous type of artefact. It was therefore decided to wash and riddle all of the earth removed during the excavations. In this matter we were fortunate in obtaining the permission of the Municipal Council at

Aberystwyth to draw our requirements of water from the Municipal water-main which, fortunately, was at hand.

The earth was in the first instance dry screened by hand in a riddle having a diameter of 42 mm. and a mesh of 5 mm. It was only the screenings left after the completion of this operation that were wet-screened. This served to reduce materially the labour involved in the subsequent wet screening. In order to reduce further the labour requirements of this latter process a screening machine was constructed which comprised three screens suspended by chains on cross bars of iron. The sieve of the upper screen was half-inch wire netting doubled on itself so as to reduce the size of the mesh; the middle screen had a mesh of 5 mm.; and the bottom screen a mesh of 3 mm. The wire sieves were removable so as to facilitate cleaning. A fine rose fitted to a hose-pipe gave an ideal spray which was turned on to the contents of the upper screen. Shortly after the work was started it was found that the bottom screen with the 3 mm. mesh was unnecessary and it was discarded. This further reduced the labour requirements.

For the first fortnight one paid workman only was employed; but in order to expedite the work, a second labourer was engaged for the remainder of the period. The two writers of this paper did their quota of spade work in what was to them a labour of love.

Excavations were started on October 23rd and completed on November 27th. During this period we were fortunate enough to have continuous dry weather with the exception of two rainy days.

The rate at which the earth could be excavated and screened by the method described above largely depended on the nature of the soil excavated and on its degree of dryness and friability. The least fall of rain made it impossible to screen the excavated earth. Under optimum conditions three men working for six hours could excavate 56 cubic metres of earth, dry screen it, then wet screen it and collect all the relics of interest which it contained. The average quantity of earth excavated, however, was about 30–40 cubic metres per day. This information is recorded for the reason that it may be of use as a basis for estimating the costs of conducting further excavations on this site.

The system adopted in these excavations was that of removing the earth in horizontal sections having a width of 90 cm. and a thickness of about 12 cm. This was continued until the glacial drift was reached.

(*a*) *Harbour Bluff.*

Digging operations were first undertaken at the western extremity of the Harbour Bluff. The nose of this Bluff was known to be very rich in chipped flints. A trench was made down to the glacial drift, 75 cm. deep. The thickness of the superimposed loam gradually decreased as the trench advanced landwards. Flints were abundant in the first 1·5 metres of the trench; they then gradually decreased in number; and

at a distance of about 3 metres from the nose of the Bluff they became very scarce. At one point in this section a fairly thick layer of charcoal was found underlying the flint layer and lying immediately on top of the drift at a depth of 60 cm.; a few flints were found associated with the charcoal, but these were not calcined. About 10 cm. immediately above the stratum of charcoal was found a much-decomposed bottle cork. This fact is worthy of record as an indication of the extent to which it is possible for the first 50 cm. of soil to become mixed on being disturbed in the course of cultivation. Pieces of coal, charcoal, iron, pipe stems, flints, mediæval and modern pottery, pot boilers, and pieces of lead, were everywhere found hopelessly mixed in this upper layer of loam. It would be a fallacy to draw any conclusion as to the age of any of these relics based upon their association with each other in this relatively thin layer.

Owing to the abundance of worked flints in the soil near the nose of the Harbour Bluff a second trench was dug towards the sea at right angles to the main trench; and the soil overlying the extreme end of the Bluff was also excavated for the same reason. The flint layer here extended from immediately below the turf to a maximum depth of 80 cm. when the glacial drift was reached. The flint layer was contiguous with that of the drift without an intervening layer of soil. Flints were found to a maximum depth of about 5 cm. imbedded in the drift. In the lower 30 cm. of loam containing flints at the nose of this Bluff no other relics of interest were found, other than flints, fragments of charcoal and of bones, some small pebbles, a few pot boilers, and occasional tongues of mudstone known as "limpet-scoops."

Near the centre of the Harbour Bluff is to be found a pit about 1·5 metres square and 1 metre in depth which is believed to have been dug recently by Boy Scouts. In this pit is revealed a distinct red layer of burnt earth about 8 cm. in thickness lying at a depth of 45 cm. below soil level. This layer on investigation was found to be relatively modern.

A great variety of stone artefacts in flint and in chert was collected from the Harbour Bluff. Amongst them are included cores, knives, scrapers, gravers, pigmy points, and thousands of chips, hundreds of which show signs of definite and deliberate secondary chipping. The types discovered are illustrated in the plates and text-figures. No relics in bronze, bones, or ancient pottery were found.

(*b*) *Hospital Bluff.*

This Bluff, in outline, is roughly a triangle with a concave base. At the apex of the triangle is to be found a low mound. This mound appears to be composed of grit and shale débris which was presumably tipped here when the adjoining railway cutting was made. At its southern wing the Bluff tapers to a width of 3·5 metres with a big vertical drop to the shingle beach below. The soil formation is well illustrated in the section exposed at the extreme end of that wing of the Bluff adjoining

the Isolation Hospital (*see* Fig. 1). Along the northern edge of the Bluff, and immediately inside the stone wall running parallel to the road, the upper 60 cm. of soil have been removed so as to form a kind of terrace.

It was proposed to excavate a trench the whole length of both wings of the Hospital Bluff. The time at our disposal would not, however, permit of this being done. We therefore decided to confine our investigations to the digging of a trench *across* the West wing and a pit in the East wing.

The sequence of soil formations in the trench was practically identical with that in the pit, and the necessity for describing them separately does not therefore arise.



FIG. 1.—SHOWING SECTION ACROSS FLINT CHIPPING FLOOR AT ABERYSTWYTH. DEPTH OF SECTION TWO METRES. FLINT-BEARING STRATUM STRETCHES FROM TOP OF WALKING-STICK TO THE HOLE ON THE LEFT.

As in the case of the Harbour Bluff the soil was removed in successive layers each of about 10 cm. depth. These layers were screened separately and material of interest in the respective layers was also stored separately.

In general, the excavations revealed the following formations: an upper layer of an average depth of 40 cm. composed of ordinary dark red cultivated loam; this stratum has for convenience been designated "*garden loam*": a second layer varying in thickness from 40 cm. to 80 cm. composed of undisturbed dark red loam containing hardly any relics of interest; this has been designated the "*rainwash*": a third layer varying in thickness from 15 cm. to 25 cm. composed of a dark honey-coloured

friable soil which was everywhere rich in flints; this has been called the "*flint layer.*" Immediately below the flint layer was found glacial drift mostly composed of sand with a little clay matrix; the colour of the drift was a distinctive greyish yellow.

The upper layer, or *garden loam*, contained the same admixture of relics as was found in the upper layers of the Harbour Bluff. These relics included an abundance of coal, and charcoal, broken crockery and pottery, pieces of pipe stems and bowls, fragments of bones, occasional shells, and odd pieces of badly corroded lead and of iron.

On reaching the next layer of *rainwash*, which is indistinguishable from the garden loam so far as colour is concerned, we found the frequency of all relics of interest to diminish rapidly. The only material of interest discovered in this layer was a beautiful small hone (*see* Fig. 7), a piece of gritty mudstone which appears to have been perforated (depth 65 cm., Fig. 9), two small pieces of corroded iron, occasional burnt stones or pot-boilers, a few chips and flakes of flint, and fragments of charcoal. The rainwash was much more difficult to excavate than the *garden loam*; and owing to the tenacity of the soil it was also very laborious to sieve.

The *flint layer* at the base of the *sterile loam* was easily distinguished from the other layers in virtue of its distinctive yellowish colour which merged upwards into the red of the loam, and downwards into the greyish yellow of the drift. The only material of interest found in association with the flints in this layer was charcoal in small fragments, a few pebbles, and occasional "limpet scoops" and pot-boilers. Practically all the flints found were free from patination on their chipped surfaces. Throughout the *flint layer*, cores, flakes, etc., of chert were found in the ratio of about 1 to 30 to those of flint. It is of special interest that no pottery or bronze or polished stones were found in the flint layer.

At the level of the *flint layer* in the pit 66 dug in the Hospital Bluff was found a black layer of soil having a somewhat greasy texture. It was about 10 cm. in thickness and 50 cm. in diameter. In it were found minute fragments of charcoal. A sample of this black earth was chemically analysed and was found to contain no ingredients of archaeological interest. With it were associated odd fragments of unburnt chipped flints. A similar, but a somewhat smaller, pocket was found in the flint layer in the trench dug in the same Bluff.

Description of the Finds.

With the exception of one small hone and two pieces of slate that appear to have been perforated, the present excavations have not revealed any type of relic which had not already been found in the earth removed at the time that the Hospital was built. It was a little disappointing not to find any bronze relics during these excavations.

As the types are identical, no distinction is made below between the relics collected during the present excavations and those previously found.

(*a*) *Pottery.*

Numerous fragments of pottery have been collected. Most of these are lightly glazed and show evidence of having been turned on the wheel. Some have no glaze, and one of these latter shows distinctive chevron pattern of decoration, though the rather fine and hard texture of the material precludes its being considered as of great antiquity. Another fragment shows coarse and rather curious markings. There was no pottery found either in the *rainwash* or in the *flint layer*. None of the fragments could be positively ascribed to an age earlier than mediæval times.

(*b*) *Iron.*

A few pieces of heavily corroded iron were collected from the *garden loam*, and three small pieces from the top of the *rainwash*. These latter were not sufficiently deep in this layer to justify our deducing therefrom the age of the layer.

(*c*) *Lead.*

The lead relics found on this site have an interest of their own. When collected, they were all covered with a thick coating of lead carbonate. The largest piece is 8 cm. in length, 3·5 cm. in width, and 3 cm. in thickness. Altogether 30 pieces of sheet lead were found, and, in addition about 100 lead shot most of which were spherical, varying in diameter from 2 mm. to 5 mm. Amongst the latter are included two pear-shaped drops.

These varied finds of lead suggest that this site was at one time used as a lead shot factory. This belief is confirmed by the presence of shot of varying sizes, of pear-drops, and of pieces of lead which clearly indicate that the molten metal was only partly solidified before it reached its destination after being poured out of the melting-pot. The site is admirably suited for this purpose as it affords a vertical drop of 10 metres or more.

It is worthy of note that lead has been mined in the hinterland of this part of Wales for many centuries, and before the advent of the railway one of the natural outlets for ore and for the metal was along the valleys of the Rheidol and the Ystwyth to the sea.

No lead was found either in the rainwash or in the flint layer. It is therefore reasonable to conclude that despite the heavy coating of white carbonate, the age of these relics in lead is probably not earlier than late mediæval times. In all probability the age of the lead shot is much later.

(*d*) *Flint and Chert Relics.*

By far the greatest interest that is attached to the relics found on this site lies in the artefacts in flint (and in chert) that have been discovered in such abundance. The other relics in stone, though of interest, are of secondary importance.

The most marked feature of the flint artefacts is the minuteness of most of those that show evidence of design which has resulted from re-chipping, or, to use a better

term, "retouching" (*see* Pl. XVI). Pigmy flints, or microliths, of the type found are considered to be characteristic of that prehistoric period, commonly known as Azilio-Tardenoisean, which intervened between the Palaeolithic and Neolithic Periods of the Stone Age. The largest of the worked flints that have been found is barely 70 mm., and the smallest only 8 mm. in length. The types of implements which occur in greatest abundance are pigmy points, knives and scrapers. A distinct monotony, or, rather, lack of variability, is observable in the design of the pigmy points and the knives, and it is clear that the art of flint flaking which had attained to such a high standard, especially on the continent, in the Solutrean Epoch of the Palaeolithic period had either been lost by the race that chipped these flints, or, as is more probable, the art was never known to them. A fairly considerable amount of *finesse* was necessary to retouch the smaller and the finer of these microliths. The flakes or, more precisely, chips, removed in this process are believed to have been detached by means of "pressure flaking." This process is not difficult to accomplish, but the implement produced here compares very unfavourably as a work of art either with the flint implements of the later Palaeolithic Epochs or with those of the later Neolithic Period. The parallel flaking characteristic of these periods is conspicuously absent from the flints of the present collection.

No barbed arrowheads were found; and the broad-leaf type of arrowhead was exceedingly rare. Only two specimens of this latter type were collected, and they are illustrated (Pl. XVII). Some were found to have been retouched with the apparent object of making a broad-leaf arrowhead, and others showed that flakes without *retouche* occasionally roughly assume the shape of a broad-leaf arrowhead. One of these broad-leaf arrowheads was picked up when the Hospital was being built, and the other was found at a depth of 30 cm. in the Harbour Bluff. It is not possible to state with certainty that these arrowheads are coeval with the pigmy points.

The flint (and chert) artefacts found may be broadly classified into *cores, scrapers, gravers, knives, notched tools, awls, broad arrowheads,* and *pigmy points.* In adopting this classification it may be as well to emphasize the fact that any individual type might easily have been used for a variety of purposes. Thus one and the same implement could in many cases be used either as a scraper, a graver, a knife, or to serve the purposes of a notched tool. Steel knives are nowadays used for purposes other than cutting cheese; and the same principle applies to many of these flint artefacts.

(1) *Cores* or *nuclei.*

About 200 flint cores and a dozen chert cores have been collected. These vary in size from 1·8 cm. to 6·0 cm. in length, and from 1·0 cm. to 5·0 cm. in width at the broadest end. Typical cores are illustrated in Fig. 1A. In many cases the operator failed to remove the flake from the whole length of the core, with the result that the subsequent flake was shouldered at its bulb end. A comparison of the core shown

in Fig. 1A (3) and Pl. XVII illustrates this feature. Attention is drawn to this character of the flakes in order to explain the *apparent* secondary chipping frequently to be found at the bulb end of flint flakes. The shouldered appearance of these flakes might make them well suited for hafting, but some authorities on doubtful grounds aver that this secondary chipping was done with the specific object of rendering the implement suitable for hafting. The chipping of the type referred to is evidently incidental and is conditioned by the heterogeneous nature of the parent core.

The abundance of pigmy cores seems to indicate that flint chipping on this site was primarily undertaken to produce pigmy points and knives. The waste chips and spalls were utilised as scrapers, awls, gravers, etc.

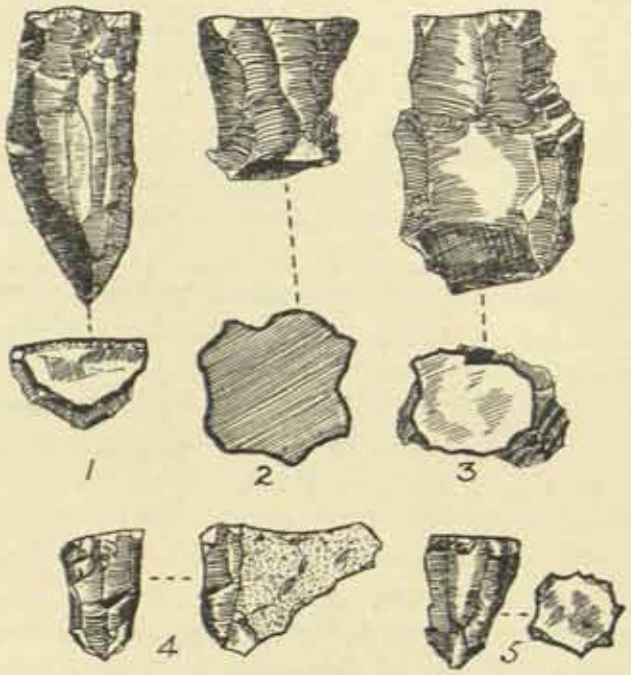


FIG. 1A.—PIGMY FLINT CORES. (½.)

(2) *Scrapers.*

Many of these are of pigmy dimensions. They show a tendency to assume the discord form which is best represented in Pl. XVII. They all show abraded edges but many of them do not conform to any particular design. Scrapers are very numerous. The very small size of the scraper in general is a distinctive feature of the flint relics. Thumb scrapers predominate; end scrapers and discoid scrapers occur in fair numbers.

(3) *Gravers.*

There is very little to indicate that any of the flint relics found have been definitely used as gravers. But the sharp thick points which are a feature of many of the

specimens would render them well suited for graving. The beautiful crescent-shaped specimen to be seen in Pl. XVII might have been used as a scraper, a graver, a knife or an awl. There is a conspicuous absence of flakes which have been definitely designed as gravers. The only specimens which appear to have been retouched for use as gravers are some of those illustrated in Pl. XVI, Fig. 1 (two upper rows).

(4) *Knives.*

A fair assortment of knives or blades is included in the collection. Some of these have very sharp edges (Pl. XVI, Fig. 2). Others show signs of wear. None of them appear to have been shaped as pointed lance heads. The long and narrow specimens have in most cases sharp convex ends. The knife may have a double



Fig 2.—Knife blade in chert. (½)



Fig. 3.—Awl or borer in chalcedony. (½)

edge as in those just referred to or a single edge. A few specimens have the appearance of having the edge specially indented for sawing, but such specimens are rare.

It is more than probable that many of the larger and more irregular flakes removed while chipping the parent core were used as knives, provided they possessed a sharp edge, irrespective as to whether they happened to be symmetrical in form. None of the knives appear to have been retouched so as to produce symmetry. The longest knife found (Fig. 2) is in chert, and measures 7·3 cm. in length. One beautiful flake, also in chert, has the appearance of a thin spear head, but it has not been retouched.

Small knife blades with battered back (*à dos rabattu*) are a feature of the larger microliths shown in Pl. XVI.

(5) *Notched tools and awls.*

About 20 of the flint finds have small concave notches varying in diameter from 2 mm. to 10 mm. These notches show signs of abrasion as if the flint had been used to scrape a narrow cylindrical piece of hard wood or of bone or horn. The relative scarcity of these notched tools would appear to indicate that the shaping of arrow shafts and of harpoons or needles was not a common practice amongst these people. The total absence of harpoons and of needles in bone and in horn also seems to vindicate this contention.

There is again a marked paucity of tools which can be definitely asserted to have been used as awls. The only specimens which are abraded on both sides of the awl-point are one of pigmy dimensions and the large tool in chalcedonic flint seen in Fig. 3. But it is not improbable that various specimens illustrated in Pl. XVII might have been used for this purpose.

We believe that it is reasonable to infer that hole boring was also a practice seldom undertaken by these people on this particular site.

(6) *Pigmy points.*

Pigmy points are also known as microliths, geometric flints, and triangular flints. In this collection of flint and chert relics, the pigmy points are the only artefacts which can be definitely asserted to have been deliberately designed by retouching. But even amongst these there is a marked absence of variability in the design. It would appear that the motive in manufacturing pigmy points of this type was to produce a narrow implement, or, rather, instrument, of very small dimensions, which had two pointed ends, a knife edge, and a reasonably straight longitudinal axis. The largest pigmy point that was found is 35 mm. in length and the various gradations between this and the smallest which is only 8 mm. in length, are illustrated in Pl. XVI. Those flakes lying horizontally in the Plates have not been retouched, and they have been illustrated with the object of showing the type of flake from which the pigmy points were made.

Some of the "points" are triangular in outline, some assume the shape of a willow leaf or of the segment of a circle, and others are irregular. There are reasons for believing, however, that the outline, or form, of the "point" was immaterial provided it was pointed at both extremities and had a knife edge on one side. No trapeze-shaped or rhomboid microliths were found. The truncated specimens illustrated were probably broken in the process of manufacture and then discarded.

Microliths of this same type, though not generally of such small dimensions, have been recorded from Australia, India, Ceylon, Palestine, N. Africa, Spain and Portugal, France, the Crimea, Poland and Denmark. In the British Isles they have been recorded from Hastings and Sevenoaks, Brighton, Devonshire and Cornwall, Pembrokeshire, Denbigh, Lancashire, Yorkshire, Isles of Oronsay, Oban, Dee Valley (Scotland), etc.

On most of these sites the form of the microliths is generally geometric with straight edges. The triangular and the trapeze forms are the most common. The former have been recorded from all of the stations referred to above; but the distribution of the trapeze form is somewhat erratic.

Pigmy geometric flints are one of the most distinctive features of Azilio-Tardenoisean culture. They were first evolved in Upper Aurignacian times. During the Solutrean and Magdalenian Epochs they disappear. They play a conspicuous rôle in the life of Azilian man; and they continue in use at least until late in the Neolithic age.

(c) Other Relics in Stone.

These include a few water-worn beach pebbles (some of which are of the same shape as the so-called "limpet scoop"), a fair number of burnt stones or pot-boilers, one hone, a small chopper in chert, two notched stones which appear to have been perforated, one flaked piece of chalcedony with a pointed end, one roughly-made adze, and the fragment of a stone which appears to have been polished. Of these relics only limpet scoops, pot-boilers and the chert chopper were found in the flint layer.

Beach pebbles.—The scarcity of beach pebbles in the excavated earth was a noticeable feature. About thirty of the tongue-shaped pebbles known as "limpet scoops," a few small pebbles about the size of hen's eggs, and occasional flint pebbles, were the only rounded stones found in the flint layer. Not more than a dozen unbroken flint nodules were collected in this layer.

At the present day the storm beach touches the foot of the cliff on which rests the chipping floor. In this storm beach flint pebbles occur in fair abundance. In view of the scarcity of unbroken flint pebbles and also of other beach pebbles in association with the relics found in the flint layer there would appear to be *prima facie* reasons for believing that flint pebbles were not as accessible, to the people who occupied this chipping floor, as they are to-day.

Limpet scoops do not occur in such abundance at Aberystwyth as they do amongst some of the Early Neolithic relics discovered at Oronsay and Oban in Scotland and in South Pembrokeshire. The material of which they are composed is in most cases a dark-green mudstone, with a tendency towards a gritty texture. The longest specimen which may be assigned to this class is 13 cm. in length. The average dimensions are: length 8 cm., width 3 cm., and breadth 1·2 cm. Most of them have been broken transversely. Of these, one in gritty mudstone shows definite markings, roughly parallel to the section, which seem to have been done in scraping a notch so as to obtain a straight fracture on breaking the stone (Fig. 4). Another of the specimens in mudstone (Fig. 5) shows roughly parallel longitudinal striae which have been deliberately designed, but with what object it is impossible to tell. This is also the only specimen which shows definite signs of abrasion at the end. A third specimen (Fig. 6) is a fairly coarse-grained sandstone. Its special interest lies in the distinctive

shallow pits which are to be found near its convex end on both sides. It also shows very slight traces of abrasion at this extreme end.

Pot-boilers, or burnt stones, though by no means abundant, were found in fair numbers associated with the flints. In the garden loam they appeared to be somewhat more abundant.



FIG. 4.—LIMPET-SCOOP (?) WITH TRANSVERSE STRIATIONS AND STIPPLED MARKINGS. (⅔.)

The *hone* found is a beautiful specimen in fairly hard, dark-green and very fine-grained mudstone (Fig. 7). It measures 13 cm. in length, 2·7 cm. at its greatest width, and 1·6 cm. where it is thickest. It has two honing surfaces, both of which are slightly convex longitudinally. At either end it has a small flat facet. It cannot be certainly associated with the flint relics.



FIG. 5.—LIMPET SCOOP (?) WITH LONGITUDINAL STRIATIONS, AND SIGNS OF WEAR AT ONE END. (⅔.)

The *small chopper* or axe in chert (Fig. 8) is roughly a square of 3·5 cm. in outline, and rectangular in section. It has a width of 1 cm. Its broadest sides are roughly parallel. Along one side it has been definitely chipped so as to produce a cutting edge. This edge is quite sharp though not straight. The implement might have been used as an axe, a chopper or a bone splitter. It shows no signs of having been polished. It was found in the flint layer.



FIG. 6.—GRITSTONE WITH SHALLOW ARTIFICIAL DEPRESSIONS ON BOTH SIDES. (⅔.)

The stone illustrated in Fig. 9 appears at first sight to have been perforated. But it is more likely that it has been used for scraping a cylindrical object, in either wood, bone, or horn. The notch is too near the edge and its diameter too wide for it to have been a hole. The stone is a dark-green, gritty mudstone, fairly tough,



Fig. 7.—Hone. (½.)

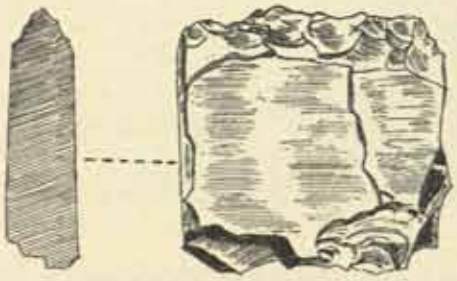


Fig. 8.—Axe and chopper in chert. (½.)

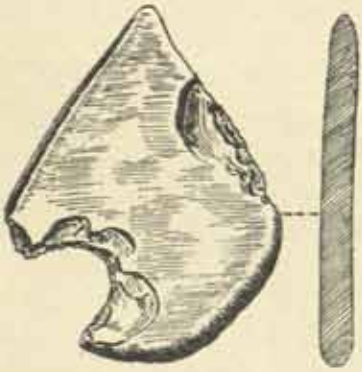


Fig. 9.—Gritty mudstone used as scraper. (½.)

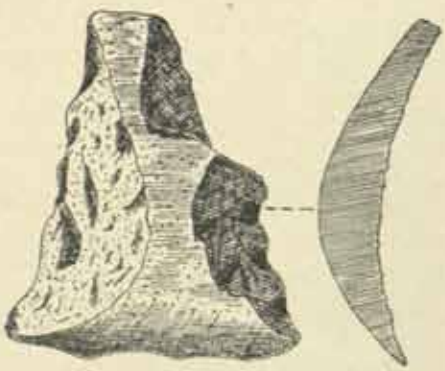


Fig. 10.—Adze (?) of fine-grained grit. (½.)

even-grained and rather hard. Another smaller pebble was found, reddish-brown in colour and of softer material than the former. It has a definite abraded notch as if it had been worn in use as a scraper. These two notched stones probably have nothing in common with the flint artefacts.

The following three specimens are surface finds exposed in the earth removed when the site for the Isolation Hospital was excavated :—

An *adze* (Fig. 10) ; unpolished ; made from a beach pebble ; in outline that of a narrow trapeze ; in section crescentic ; sides bevelled ; and cutting edge slightly abraded as if it had been in use ; rock, either a fine-grained grit or a fine-grained volcanic ash, very hard, tough and dark grey in colour ; dimensions 8 cm. in length, 8 cm. in width at base, 1·9 cm. thick in centre tapering to fairly sharp edge at base. It has been designedly chipped by man to give it its present shape.

Flake from polished axe.—The flake was discovered by a visitor to the site of the chipping floor. Its discovery is here recorded for the reason that it is believed by some authorities to have been a part of a polished implement. The stone is a greyish green, fine-grained, hard rock, probably a volcanic ash. There is, in the writers' opinion, nothing to indicate that it might be a flake that once formed part of a polished axe other than its very smooth surface and its hardness. An equally smooth surface may be seen on many of the glacially imported pebbles on the adjoining storm beach.

Borer or *awl* in chalcedony (Fig. 3) : in outline, roughly shape of laurel-leaf ; in section sub-triangular ; colour merging from dark-red at base to semi-transparent grey, mottled with red near the point ; fracture sub-conchoidal ; minute secondary chipping on both sides of the point along 1·5 cm. of edge until shoulder is reached ; part of original surface of pebble retained near base ; irregular and rather large, flakes removed from main face and from sides ; main axis straight ; length 7·5 cm., greatest width 2·8 cm., greatest thickness 2·1 cm. (Note, in Fig. 3, the width and the height have been slightly exaggerated) ; discovered on beach 100 metres downstream of chipping floor at confluence of Rheidol and Ystwyth.

The interest of this excavation relates chiefly to the flint and chert artefacts found in a layer immediately superposed upon glacial drift with no intervening stratum of any kind. The thickness of the layer containing flints is, on an average, 20 cm. On the Hospital Bluff a stratum of rainwash nowhere less than 50 cm. in thickness overlies the flint-bearing layer. In many places the subsequent accumulations over the flint-bearing layer are 1·2 metres thick. It seems justifiable to infer from this that the flint chipping floor was in use not very long (geologically speaking) after boulder clay had ceased to accumulate on this spot.

In the southern half of Pembrokeshire flints chipped by man have been collected in large numbers on upwards of sixty different sites by Messrs. Leach, Cantrill and O. T. Jones.[1] Leach has classified these flints into four categories of origin which he thinks are in chronological sequence :—

[1] "Notes on the Discovery of Prehistoric Hearths in South Wales," T. C. Cantrill and O. T. Jones, *Arch. Camb.*, ser. 6, vol. vi (1906), p. 17. "Prehistoric Cooking Places in S. Wales."

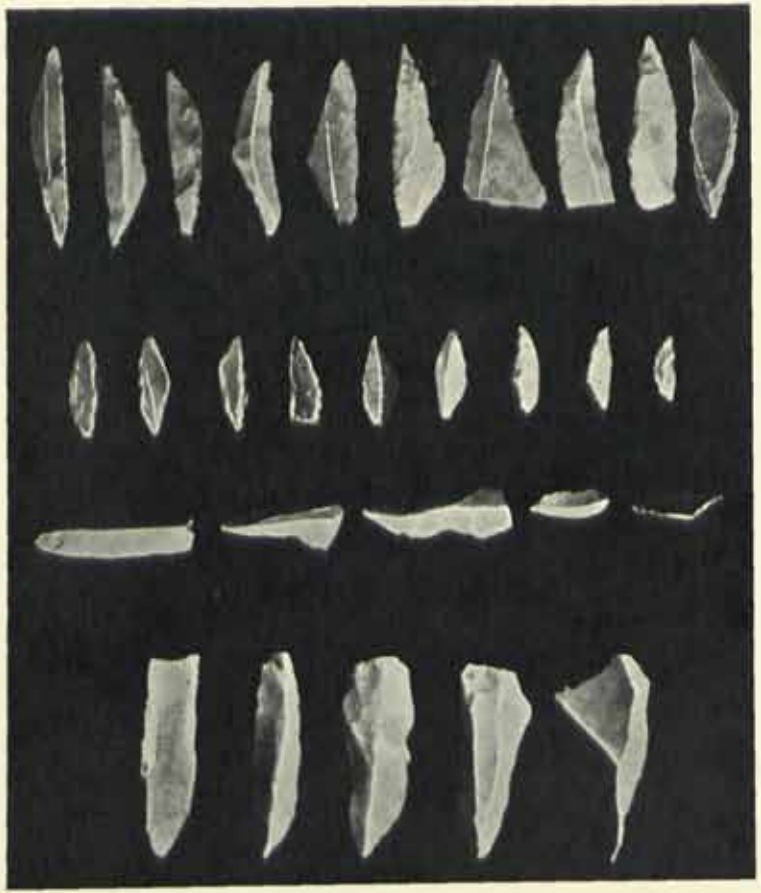


FIG. 1.—PYGMY POINTS OR MICROLITHS OF FLINT. THOSE IN THE TWO TOP ROWS HAVE BEEN RE-CHIPPED. (½.)

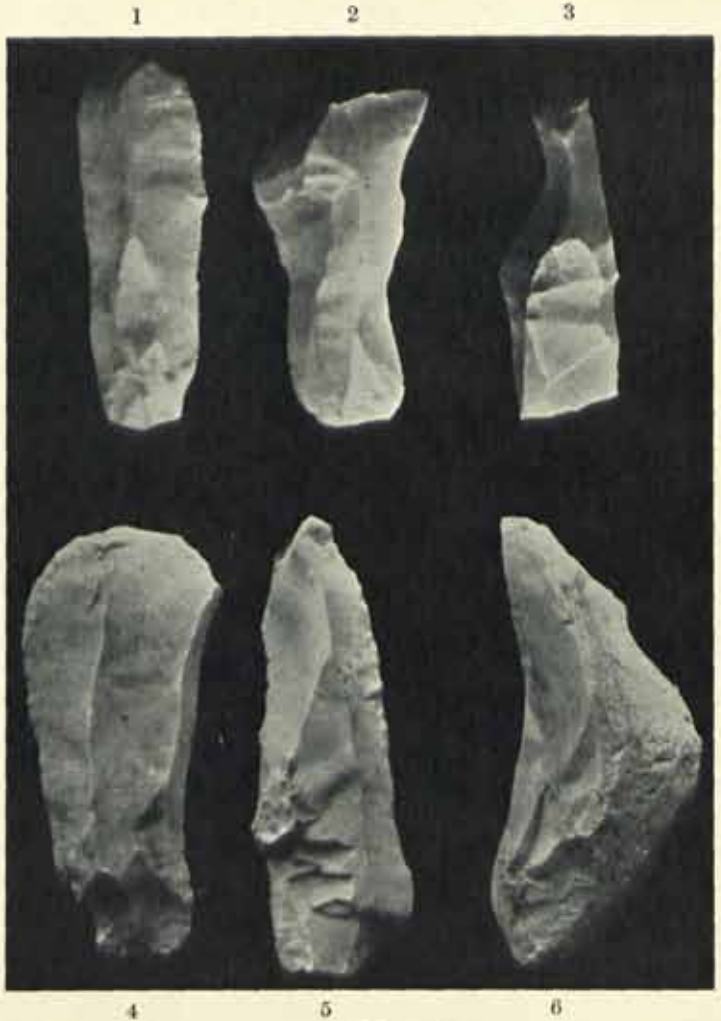


FIG. 2.—VARIOUS TOOLS OF FLINT: 1, 4 AND 5 PROBABLY KNIFE BLADES. NO. 3 PERHAPS A GRAVER. NO. 5 SHOWS SIGNS OF USE. (½.)

Journal of the Royal Anthropological Institute, Vol. LV, 1925, Plate XVI.

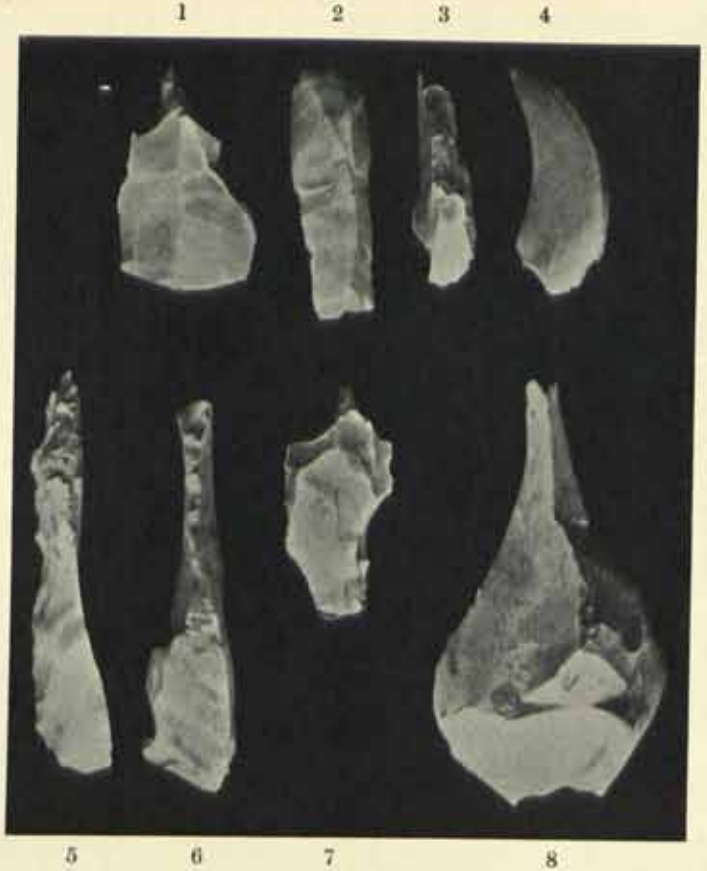


FIG. 1.—VARIOUS FLINT TOOLS. NOS. 1 AND 3 WOULD SERVE AS BORERS, AND NO. 7 AS A GRAVER. (⅓.)

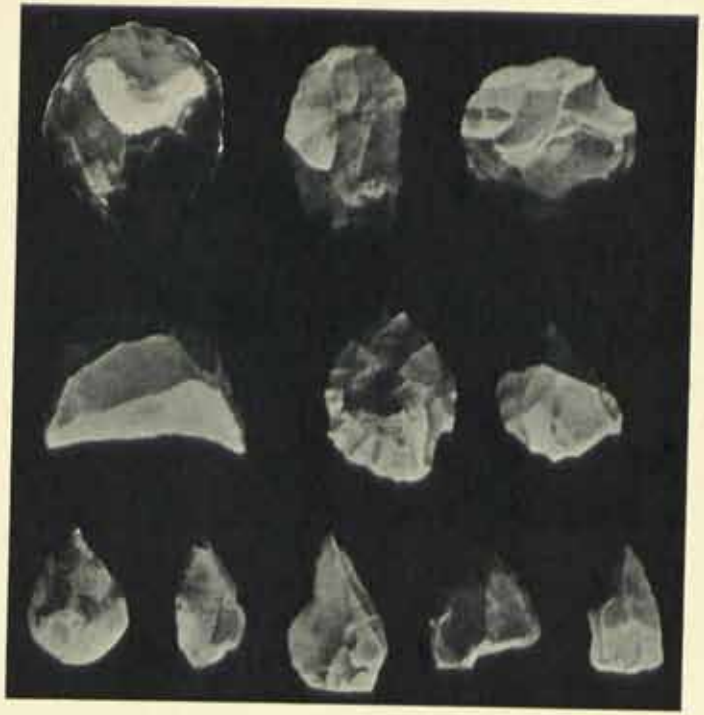


FIG. 2.—PYGMY SCRAPERS (TOP ROW). CRESCENTIC SCRAPER (MIDDLE ROW, LEFT). LEAF-SHAPED ARROW-HEAD (MIDDLE ROW, MIDDLE, AND THE RIGHT-HAND SPECIMEN MAY BE AN UNSUCCESSFUL ATTEMPT AT THIS FORM). THE FIRST TWO AND THE LAST ON THE BOTTOM ROW ARE SIMPLE FLAKES IN THE FORM OF BROAD-LEAF ARROW-HEADS.

(1) Oldest—in rainwash or soildrift underlying the submerged forest and peat.
(2) On the surface of the submerged forest.
(3) On chipping floors on high ground near the cliffs.
(4) In shell-mounds on sandhills adjoining the coast.

He adduces reasonable evidence for this view and it would seem that the No. 1 flints were dropped *in situ* in pre-forestal times. This implies a very early Neolithic or a slightly pre-Neolithic date.

If, as seems probable, the rainwash at Aberystwyth and in Pembrokeshire can be homologised, the Aberystwyth flint artefacts would be pene-contemporaneous with or slightly older than the Pembrokeshire group No. 1.

The most characteristic finds in the flint layer are pigmy points, small blades with battered backs and pigmy scrapers. These types are almost but not quite confined to stations of Azilio-Tardenoisian culture, identified, it is true, partly from these types (so one must beware of arguing in a circle) but partly by associated finds and by stratification.

We know that pigmy points appeared in what is called upper Aurignacian, and blades with battered backs in what is called upper Magdalenian. But when these two forms, together with pigmy thumb-scrapers, are found in association with each other, they give us very specific indication of the age of the flint chipping floor. The pigmy points are much like those described for Fère en Tardenois. There is a notable absence of the trapezoid and rhomboid microliths as well as of shells or shell fragments. As against the assumption of a late date for the flint chipping it may be urged that later men would surely have left some traces of polished implements or domestic animals on a site used as much as was this one.

The work of sorting out the material and of comparing it with what is known from other sites led us to ponder over the meanings and uses of the artefacts and the origin and distribution of the culture to which they belong, but we have thought it best to give this account of the Aberystwyth site without undue complications.

The finds from this site have been deposited in the Prehistoric Section of the Museum attached to the Department of Geography and Anthropology at Aberystwyth, and in the National Museum of Wales at Cardiff.

Our thanks are due to the Board of Celtic Studies for financial support, to Professors Fleure and Pugh, to Mr. Jones-Griffiths for analysing the pocket of black soil, to Mr. I. T. Hughes, B.A., for help freely given, and to the Municipal authorities at Aberystwyth for privileges and help.

T. C. Cantrill and O. T. Jones, *Arch. Camb.*, ser. 6, vol. xi (1911), p. 253. "Prehistoric Cooking Places on Pembrokeshire and Carmarthenshire Coasts," A. L. Leach, *Arch. Camb.*, ser. 6, vol. xi 1911), p. 433. "Prehistoric Flint Factory at Aberystwyth," Roger Thomas, *Arch. Camb.*, ser. 6, vol. xii (1912), p. 211. "Flint Chipping Floors in S.W. Pembrokeshire," T. C. Cantrill, *Arch. Camb.*, ser. 6, vol. xiv (1914), p. 157.

THE POINTING BONE.

By G. Róheim.

1. It is very bad form in polite society to indicate the object or person we are speaking of by pointing, and this taboo has its analogies in folk-lore.

We find the same prohibition in various parts of England, Germany,[1] Hungary,[2] as well as in Austria[3] and China.[4] It is dangerous to point at the moon or stars, because the finger will rot off, or the heavenly bodies will punish the irreverent mortal by pulling him up into the sky.[5]

In ancient Israel pointing with the finger was sinful,[6] and in Babylonia it was unlucky to point towards the light.[7] In Bohemia it is dangerous to point at a witch; she will give the person a headache who tries to do this.[8]

2. There seem to be at least two independent areas of *pointing as a method of aggressive magic*, viz., America and Australia. In America it looks as if this magical technique had become a thing of the past long before the arrival of the white man, for what we find is more a mythical survival than the actual practice of pointing magic. The Blackfeet have a parallel to the European pointing taboo.[9] On reaching the person against whom the spell was to be directed the Choctaw witch would stop and point towards him, whereupon one of the little spirits would go noiselessly and touch him, afterwards remaining and doing mischief about the place.[10] This is how the magical competition between K'āñigyilak' and Raven

[1] E. M. Leather, *The Folk-Lore of Herefordshire*, 1912, p. 16. Wuttke, *Der deutsche Volksaberglaube*, 1900, p. 14. P. Drechsler, *Sitte, Brauch u. Volksgl. in Schlesien*, 1906, p. 239. A. John, *Sitte, Brauch u. Volksgl. im deutschen Westböhmen*, 1905, p. 240. J. Grimm, *D. Myth.*, 1877, II., p. 611. *Am Urquell*, 1892, p. 95.

[2] Bartels, *Z. d. V. für Vk.*, VI., p. 23. Ipolyi, *Magyar Mythologia*, 1854, p. 276.

[3] Grillmayer, *Z. für Östr. Vk.*, 1913, p. 216.

[4] Grimm, *D. Myth.*, *l.c.*

[5] P. Sebillot, *Le Folklore de France*, 1904, i, p. 56. F. J. Wiedemann, *Aus dem inneren und äusseren Leben der Ehsten*, 1876, p. 458. K. Schwenck, *Die Mythologie der Slaven*, 1850, p. 432. T. Harley, *Moon Lore*, 1885, pp. 125, 149. Fr. Schönwert, *Aus der Oberfalz*, 1858, II., p. 61 F. Gönczi, *Gözsej*, 1914, p. 188. H. Ankert, in *Zt. f. Östr. Vk.*, 1899, p. 137.

[6] Isaiah lviii, 9.

[7] C. Fossey, *La Magie Assyrienne*, 1902, p. 60.

[8] Wuttke, *l.c.*, p. 283. See also F. S. Krauss, *Volksgl. und rel. Br. der Südslawen*, 1890, p. 14; *Globus*, LXXXII., p. 177; Keller, *Zt. f. afr. u. oz. Spr.*, VI., p. 167.

[9] "Never point toward anyone with your fingers, always use the thumb," W. McClintock, *The Old North Trail*, 1910, p. 268.

[10] David I. Bushnell, "The Choctaw of Bayou Lacomb," *Bureau of Am. Ethn., Bull.* 48, 1909, p. 29.

(O'meātl) is fought by merely pointing at each other with the forefinger, and thus piercing through the skull of their adversary.[1] Just like the European witch, the magician will show his power by paralysing or killing any one who points his finger at him.[2] An Iroquois will only be recognized as one of the witches or wizards if he can kill a person by merely pointing at him.[3]

The stone-hearted cannibal ogres of Cherokee folk-lore have forefingers of bone, "like an awl or spear-head with which she stabbed every one to whom she could get near enough." When the witch stabbed somebody with her long finger she would take out his liver—a characteristic Australian proceeding, only substituting the kidney fat for the liver[4]—without leaving a wound, so that the victim went on about his affairs, until all at once he felt weak and gradually began to pine away.[5] The latter is a good example of the way in which the benevolent aspect of an ambivalent attitude arises as a reaction-formation against the original aggressive tendency,[6] for whereas pointing with the staff is death, a sick person is healed if touched with the other end of the same staff.[7]

This reaction-formation is still more developed in the case of a Tlatla-sikoala legend, where the hero animates a wooden image by pointing at it.[8] The practice of pointing seems to survive in relation to natural phenomena after having fallen into disuse in purely "anthropic" magic, for we have several cases of influencing the weather by pointing at the sun or clouds,[9] which correspond to the taboo of pointing at the moon, stars, or rainbow in Europe. It is only in South America,

[1] F. Boas, *Indianische Sagen von der Nord-Pacifischen Küste Amerikas*, 1895, p. 197. *Cf.* p. 163 ("People killed by hero moving his hands towards them"), p. 225 (same episode).

[2] S. R. Riggs, "Dakota Grammar, Texts and Ethnography," *Contributions to North American Ethnology*, ix, 1893, p. 93.

[3] Beauchamp, "Iroquois Notes," *Journal of American Folk-Lore*, 1892, pp. 223, 224. *Cf.* pointing a human finger at game: F. Boas, "Eskimo of Baffin Land," *Bull. A. Mus. N. H.*, xv, p. 499. *See* also E. A. Smith, "Myths of the Iroquois," *Bureau of Ethn., II. Report*, 1883, pp. 63, 64, 68, 70.

[4] *Cf.* Róheim, "Das Selbst," *Imago*, VII., 1921, p. 20.

[5] J. Mooney, "Myths of the Cherokee," *Bureau of Am. Ethn., Rep. XIX*, 1900, pp. 317-319. (The Iroquois parallel is mentioned in the notes, p. 469.) Other objects come to replace the finger. *Cf.* W. Bogoras, *Jesup Expedition*, vii, 1907 (Staff). Boas, *ibid.*, ii, 1898, p. 54 (Crystal). Frachtenberg, *Columbia University Contributions to Anthropology*, i, 1913, p. 41. Petitot, *Traditions indiennes du Canada Nord-Ouest*, 1887, p. 279.

[6] I must refer the reader to psycho-analytic literature for the exact sense in which the words "ambivalent," "reaction-formation," "symbol," "repression," "unconscious," etc., are used in this paper.

[7] Boas, "Bella Coola," *Jesup Expedition*, II, p. 54.

[8] Boas, *Indianische Sagen*, p. 189.

[9] J. Teit, "The Shuswap," *Jesup North Pacific Expedition*, vol. ii, Part vii, p. 602. J. A. Mason, "The Ethnology of the Salinan Indians," *Univ. Cal. Publ. Am. Arch. and Ethn.*, x, No. 4, 1912, p. 185. J. R. Swanton, "Indian Tribes of the Mississippi Valley and adjacent Coast of the Gulf of Mexico," *B. o. E. Bull.*, xliii, 1911, pp. 179, 180.

amongst the Karaya, that we have a regular pointing apparatus called, "kuoluni" (Zitteraal), and shaped like a fish, which is used to doom people to death.[1]

3. I dealt with the question of the pointing bone in a book on the *Origin of the Mana Concept*, where I accepted the explanation given by Irving King,[2] who regards pointing as a special case of the "Rehearsal of a prospective fight, not unfrequently found among primitive people, and due to the tendency of the pent-up impulse to find expression in some associated or similar activity."[3] I added that we have here a special case of circular reaction,[4] for the original action (fight) calls forth its imitative copy (stabbing movements in the air), and this in its turn is thought to call forth, and in a certain sense it actually does call forth, the original (the rehearsal is a preparation for the real fight).

4. A general survey of primitive ritual and behaviour takes us one step further. We notice what we can call an initial, a principal, and a final phase in all our activities. Thus there is a rehearsal of the combat before the battle (initial phase), then the battle itself (principal phase), and then a mimic repetition of the event on returning into camp (final phase). Animals are imitated before commencing the chase (initial phase), then there is the chase itself (principal phase), and a mimic repetition of what happened afterwards. Girls play with dolls, women have children, and if the child dies a doll is made in its likeness and memory, fed, clothed, etc., so that another make-believe activity concludes the series. These three phases (*a*) reduced, (*b*) realistic and (*c*) reduced, seem to constitute the original type of all our motor-reactions, and the functional value of (*a*) seems to be that it prepares the way from inertia to action, whilst (*c*) is the bridge between full action and the regained repose attitude or vital maximum.[5] From this point of view pointing magic would be the initial phase of a prospective combat, and probably also the reduced repetition, the copy of former combats that took place in the prehistorical period of the race.

5. The interpretation of the magical efficacy of the pointing apparatus by the connection between inhibited and realistic action is one which we must call a functional explanation; it leaves the question of the phylogenetic origins of this combat and its repetition open. It is a remarkable fact that the two principal schools in ethnology which have "culture-contact and history" on the one side and "evolution" on the other for their watchwords should be arrayed against each other in battle-

[1] F. Krause, *In den Wildnissen Brasiliens*, 1911, p. 334. *Cf.* Skeat and Bladgen, *The Pagan Races of the Malay Peninsula*, 1906, ii, p. 362. *See* also Walter E. Roth, "An Inquiry into the Animism and Folk-lore of the Guiana Indians," *XXX Annual Report, Bureau of Am. Ethn.*, 1915, pp. 239, 271.

[2] Róheim, *A varázserő fogalmának eredete*, 1914. (Some of the data referred to in this paper have already been used in this book.)

[3] King, *The Development of Religion*, 1910, p. 55.

[4] J. M. Baldwin, *Mental Development in the Child and the Race*, 1911, pp. 250–255.

[5] *Cf.* the "vital series" theory of Avenarius, *Kritik der reinen Erfahrung*, 1907, I., p. 80, and S. Freud, *Jenseits vom Lustprinzip*, 1920.

order; for the unbiassed observer they seem to be supplementary to each other and both equally indispensable. We shall try to show the history, that is, on the lines on which the pointing magic evolved in what is at present its classical area (Australia), and by locating it in a definite culture-complex, by ascertaining the customs with which it was originally connected, we shall try to get a glimpse at its prehistorical evolution.[1] The question is, whether we can ascribe the origin of the pointing bone to one of the two Australian culture areas ("Western" and "Eastern" Papuan of Graebner) by studying its geographical distribution, and partly by internal evidence, by its connection with other customs of one of the areas in question. The Gnanji, Bibbinga, Anula, and Mara tribes have a specially potent form of pointing bone which is made out of the femur or fibula of a dead man. These same tribes have another custom which seems to deserve our attention; the radius of a dead man is always carried on the expedition which goes out to avenge his death, and is attached close to the head of a spear which cannot fail to go straight and kill the murderer.[2] We shall pay special attention to the material which is used for manufacturing the pointing instrument, for, as we shall soon notice, the use of human bones predominates in some, and that of kangaroo (emu) bones or wood is customary in other areas. "Between the 15th degree of latitude and the northern coast, human bones seem to play an important part in black magic." But some of these tribes use them also for curative purposes. The Plinara and their neighbours bind them to the wounds, which makes them heal quicker.[3] Traversing the Australian continent from the north to the south we come to the tribes which constitute what has been called the Warramunga nation.[4] We have but scanty information on the pointing magic of this group; it seems to be similar to that of its southern neighbours.[5] Women use their head-rings, yam-sticks, kangaroo and euro bones for pointing. Probably all these feminine forms of aggressive magic are only copied from the doings of the stronger sex. In the Kaitish tribe we are told that the women act under the instructions of their husbands when making a pointing bone out of the fibula of a wallaby.[6] The Arunta have both the *injilla* (a small piece of bone about six inches long) and the *irna* (a piece of wood) for pointing. The man turns his back to his victim, and, stooping down, jerks the *injilla* or *irna* towards him several times, muttering certain curses as he does

[1] The speculations on a prehistorical period of humanity which branch off from this paper must, however, be reserved for another occasion.

[2] Spencer and Gillen, *The Northern Tribes of Central Australia*, 1904, pp. 463, 464.

[3] E. Eylmann, *Die Eingeborenen der Kolonie Südaustralien*, 1908, p. 217. *Cf.* H. Basedow, "Anthropological Notes made on the South-Australian Government North-West Prospecting Expedition," *Trans. Roy. Soc. S. A.*, xxviii, 1904, p. 23.

[4] Spencer and Gillen, *Northern Tribes*, p. 76 (Warramunga, Worgaia, Tjingilli, Umbaia, Bingongina, Walpari, Wulmala, Gnanji). The Gnanji must be regarded as the connecting link between this group and the coastal tribes.

[5] *Cf.* Spencer and Gillen, *Northern Tribes*, pp. 463–465.

[6] Spencer and Gillen, *Northern Tribes*, p. 464.

so.[1] Strehlow calls the bone pointer *ntjala* ("shin-bone") and tells us that they are made out of the leg-bones of both species of kangaroo and of the emu.[2] The Loritja also use both pointing-bone and stick, but whilst the rest of these tribes employ animal bones the northern Arunta and the western Loritja use the arm-bone of a dead man.[3] The fundamental idea of the pointing apparatus is varied in many local forms; for instance, the *tjingilla* of Finke River is a wooden instrument with human hair string. The *injilba ungakura* at Erlitthera Creek consists of a long strand of human hair string, to one end of which five small pointing bones are affixed.[4]

The difference in the local groups of these two large tribes is connected with another variation in burial ceremonies. The western Loritja are in touch with tribes who practise various forms of delayed burial, and with others where the original cannibalism of all these tribes persists in a less reduced fashion than amongst the Loritja themselves and the Arunta. The western Loritja themselves and the Arunta eat only the fat of enemies killed on a revenge-expedition.[5] But the Waiangara who live to the west of the Loritja devour all their dead, and only leave the skull, which serves as a war-talisman: the chief carries it along on his shield when attacking a camp of foreign natives. If the expedition is successful all the inmates of the camp are slaughtered, and pointing bones are made out of their arm- and leg-bones. The tribes to the west of the Loritja, like the Yumu, and those to the north both of the Loritja and Arunta, like the Ngali, Ilpirra, Unmatjera and Kaitish practise tree and platform burial. The Ngali, for instance, anoint themselves with the liquid matter which drops from the tree grave, and draw oracles from the same as to the person who caused the death. If it flows to the north the murderer is one of the northern natives, and so on; but if it drops close to the tree-trunk the guilty party is one of the members of the tribe.[6] When the guilty party is found out, the two "*ukari*" of the deceased

[1] Spencer and Gillen, *Native Tribes*, p. 536; idem, *Northern Tribes*, p. 456. F. J. Gillen, *Notes on Some Manners and Customs of the Aborigines of the McDonnel Ranges*, Horn Scientific Expedition, 1896, IV, p. 135. *Cf.* Giles, "*Autakerringa*," in Taplin, *Folk-Lore of the South Australian Aborigines*, 1897, p. 90. L. Schulze, "Australian Sorcery Practices," *American Anthropologist*, 1892, p. 287. *Idem*, "The Aborigines of the Upper and Middle Finke River: their habits and customs," *Trans. and Proc. Royal Soc. S.A.*, XIV, 1891, p. 244.

[2] Strehlow, *ibid.*, p. 36. R. H. Mathews, "Ethnological Notes on the Aboriginal Tribes of the Northern Territory," *Proceedings and Transactions of the Geogr. Soc. of Australasia*, xvi, p. 81.

[3] C. Strehlow, *Die Aranda und Loritja-Stämme in Zentral Australien*, IV., T. II, Abt. 1915, p. 32.

[4] Spencer and Gillen, *Northern Tribes*, p. 459. *Cf.*, for Unmatjera and Kaitish pointing sticks, *ibid.*, pp. 460, 461.

[5] Strehlow, IV, p. 27. *Cf.* Spencer and Gillen, *Native Tribes*, p. 475.

[6] The same method is in vogue among the West Kimberley natives (Albert F. Calvert, *The Aborigines of Western Australia*, 1894, p. 21), and the Warramunga (Spencer and Gillen, *Northern*), p. 528. The juice of the corpse is used to discover the murderer in New Guinea (Moszkowski, "Völkerstämme in Holländisch Neu Guinea," *Z. f. E.*, 1911, p. 325). The guilty will vomit it (*cf.* J. G. Frazer, *Folk-Lore in the Old Testament*, 1919, iii, p. 304, "The Bitter Water."

take the right forearm of the corpse and openly accuse the men of murder; when they again accuse them in the camp the right forearm-bone must be stuck into their arm-band.[1] Among other tribes with platform or tree burial (Kaitish, Illiaura, and Warramunga) before placing the corpse, or rather skeleton, finally in the ground, the small bones of the arm are used for making magic pointing bones and are carried about with them on fighting expeditions.[2] We can tabulate these results with reference to the Central tribes as follows:—

Tribe.	Human bone.	Animal bone.	Stick.	Tree or platform.	Cannibalism.	Earth burial.
Mara ...	Sp. II, 463	—	—	Sp. II, 548	Sp. II, 548	—
Anula ...	Sp. II, 463	—	—	Sp. II, 548	Sp. II, 548	—
Binbinga ...	Sp. II, 463	—	—	—	Sp. II, 548	—
Gnanji ...	Sp. II, 463	—	—	Sp. II, 548	Sp. II, 545	—
Walpari ...	—	Sp. II, 458–463	Sp. II, 458–463	Sp. II, 515	—	—
Warramunga	Sp. I, 553	Sp. II, 458–463	Sp. II, 458–463	Sp. I, 553	—	—
Kaitish ...	Sp. I, 553	Sp. II, 458–463	Sp. II, 458–463	Sp. II, 506	—	—
Wulmala ...	—	Sp. II, 458–463	Sp. II, 458–463	Sp. II, 506	—	—
Unmatjera ...	—	Sp. II, 458–463	Sp. II, 458–463	Sp. II, 506	—	—
Ilpirra ...	—	Sp. II, 458–463	Sp. II, 458–463	Sp. II, 506	—	—
Illiaura ...	Sp. I, 553	Sp. II, 458–463	Sp. II, 458–463	Sp. I, 553	—	—
Arunta ...	Str. IV, 36	Sp. I, 534	Sp. I, 534	—	—	Sp. I, 506
Loritja ...	Str. IV, 36	Str. IV, 36	Str. II, 36	—	—	Str. IV, 25
Ngali ...	Str. IV, 26	—	—	Str. IV, 26	—	—
Waisngara ...	Str. IV, 26	—	—	—	Str. IV, 27	—

That is, among all the tribes with human bones used for pointing we have seven with tree and platform burial;[3] five of them devour the dead (three of these have also platforms or survivals of the custom), and only two bury the body directly after death in an earth grave.[4] These two tribes (or rather sections of tribes) are the northern Arunta and western Loritja, who have evidently borrowed the custom from their neighbours.

We believe that there is a causal relation between certain forms of disposal of the dead on the one hand and the human pointing bone on the other, and suppose

[1] Strehlow, *l.c.*, IV, pp. 26, 27.

[2] Spencer and Gillen, *Native Tribes*, p. 553. *Cf.* p. 498.

[3] Two with survivals of platform burial (Mara, Anula, to which we must probably add the Binbinga). Bones placed on a small platform for a short time until quite dry. (Spencer and Gillen, *Northern Tribes*, p. 549).

[4] It is very probable that the Wulmala, Unmatjera and Ilpirra have human pointing bones, but as this is not expressly stated by Spencer and Gillen we have not included them in the list. The Ilpirra use their own fingers as a pointing bone. (Spencer and Gillen, *l.c.*, pp. 552, 553.)

that the custom of injuring an enemy by pointing human bones at him was introduced into Australia by tribes with anthropophagy, platform burial, or with a combination of these two rites. The nature of this relation is evident enough. If the corpse is buried and a mound raised over the grave it is a far more difficult affair to get at the bones necessary for making a pointing apparatus than in the other two cases, *i.e.*, if the dead are laid out on a platform or eaten by their relatives.

6. The Dieri[1] have both the pointing bone and the stick, but they call both "moku," *i.e.*, bone.[2] This is one of their most common spells: it is called *mukuelli dukana* from *muku*, "a bone," and *dukana*, "to strike."[3] The blood of the subincised penis is made to drip on the bone,[4] because if it remained dry it could not absorb the blood of the man who is about to be doomed. A string of human hair is attached to one end of the bone with pitch, and the wizard winds the string very tightly round his own arm so as to transfuse his own blood into the bone. A second string connects him with his helpmate, who pulls at the string, moving the pointer up and down. Suddenly he attaches a clump of pitch or clay to the point of the bone. Now he is supposed to have caught the soul of the victim, which has been drawn into the bone through the blood (soul) of the magician, and the clump of clay is necessary, lest the soul should try to escape through the point.[5] Then they bury the bone, wrapping it in emu feathers and in the *kuja-mara* plant,[6] and leave it in the earth for many months. The only way to save the man is to take the bone out of the fire and put it into water.[7] It seems that the pointing bone may be a substitute for the *pinya* (armed revenge-expedition), at any rate the explanatory legend recounts how two Mura-Muras acting together revenged the murder of a Mura-Mura boy by "giving the bone" to those who had killed him.[8] At this point we must explain the irregular distribution of the custom we are dealing with. Human pointing bones

[1] *Cf.* also A. W. Stirling, *The Never Never Land* (*Ride in North Queensland*), 1884, p. 89, Peake (Urabunna), and recently G. Horne and G. Aiston, *Savage Life in Central Australia*, 1924, 149 (Wonkongurie, Dieri).

[2] E. Eylmann, *Die Eingeborenen der Kolonie Südaustralien*, 1908, p. 214.

[3] A. W. Howitt, *Native Tribes of South East Australia*, 1904, p. 359.

[4] *Cf.*, for instance, Strehlow, *l.c.*, iv, 1915, p. 37.

[5] *Cf.* other cases of souls stolen by sorcerer, J. G. Frazer, *Taboo and the Perils of the Soul*, 1911, pp. 69–71.

[6] The plant on which corpse is laid is called *kuja marra*, i.e., new fish. Howitt, *l.c.*, p. 448. For an explanation of this name *cf.* Róheim, *Australian Totemism*, 1925, p. 195.

[7] O. Siebert, "Sagen und Sitten der Dieri und Nachbar stämme in Zentral Australien," *Globus*, xcvii, 1910, p. 55. *Cf.* S. Gason, "The Dieyerie Tribe" in Curr, *The Australian Race*, 1886, ii, p. 65.

[8] Howitt, *l.c.*, pp. 359, 360. Mary E. B. Howitt, "Some Native Legends from Central Australia," *Folk-Lore*, xiii, p. 403. For another legend, which derives all the pointing bones of the tribe from the skeleton of a Mura-Mura boy killed by his camp-mates, *cf.* Eylmann, *l.c.*, pp. 2, 4. *See* also J. W. Gregory, *The Dead Heart of Australia*, 1906, pp. 195, 196. For the custom among the Ominee, who belong to the Dieri nation, *see* W. J. Paull, in Curr, *l.c.*, ii, p. 20. The Nimbalda (evidently an offshoot of the Parnkalla) may have derived the custom from the same source (H. O. Smith, in Taplin, *Folk-Lore*, 1879, p. 87).

are conspicuous by their absence in the Arunta and Loritja tribes (except for the western and northern local groups, who have evidently borrowed them only recently from their neighbours), but they reappear among the Dieri, a tribe with earth burial. But there are other traits which connect the Dieri with the northern tribes, although they are absent among the Arunta between the two groups. Ceremonial cannibalism is the way in which the dead are disposed of among the Binbinga, Mara, and Anula,[1] and the same custom is found among the Dieri, Yaurorka, Yantruwunta, and Marula, though with the modification that it is only the fat of the dead that is partaken of.[2] This looks like a compromise between two conflicting customs; on the one side a local tribe with earth burial, and on the other immigrants who consumed the dead in a cannibal meal. Add to this that the Binbinga call the bull-roarer *wata-mura*, the Anula *murra-murra*,[3] and the Warramunga *murtu-murtu*,[4] whilst the Dieri call their Alcheringa ancestors Mura-Mura.[5] The least improbable explanation will be to assume that the matrilinear tribes which formed the ground-stock of the Dieri were influenced by the northern patrilinear tribes, with conceptional totemism, in more than one "wave." One of these waves must have been similar to the present Anula and Warramunga nations, and must have come into contact with the Dieri before the Arunta tribe occupied the centre of Australia; these brought the custom of endophagy and the pointing bone with them, whilst a second "wave" of influence radiated from the Arunta and especially affected the *intichiuma* ceremonies of the Dieri.

7. One of the results of Father Schmidt's learned work on Australian linguistics is the discovery of the influence of the Southern-Central tribes (Dieri and congeners) on South Australian languages in general. This influence must have been a very profound one[6]; indeed, the word influence is rather misleading. For if the agreement of South Australian languages in the words denoting parts of the body is to be attributed to the influence of these tribes, this influence had better be called admixture; it is difficult to suppose that a primitive horde (or for that matter, a civilised community) would be likely to drop its own words for hand, leg, tongue, excrement, and adopt those of a neighbouring tribe. But if these tribes have sprung up from the interaction of two races, we might easily picture them as talking a mixed language, with the grammatical structure of the local, and some fundamental vocables

[1] Spencer and Gillen, *Northern Tribes*, p. 548.

[2] Howitt, *l.c.*, pp. 448, ff.

[3] Spencer and Gillen, *Northern Tribes*, pp. 280, 366, 501.

[4] *Id., ibid.*, p. 500.

[5] *Cf.* for these points of contact Schmidt, "Die Stellung der Aranda," *Zeitschrift für Ethnologie*, 1908, p. 901. Besides the works of Father Schmidt (quoted above), and his paper on "Die soziologische und religiösethische Gruppierung der australischen Stämme," *Z. f. E.*, 1909, p. 328, see also Róheim, *Australian Totemism*, 1925, pp. 109, 314, 412.

[6] Schmidt, "Die Gliederung der australischen Sprachen," *Anthropos*, xii, xiii, 1917–18, p. 749.

of the immigrant speech. However, one of these two races, the immigrant tribes with the two-class system and female descent, was composed of two elements: the dual tribes of "Melanesian" origin and a strong admixture of "Western Papuans" (as Graebner calls them). This admixture took place on more than one occasion, the Dieri having certainly a culture which contains "Central" elements propped up on a matrilinear stock. Possibly this admixture is present in all the tribes with "South-Central" languages, or it may be that "Central" customs were passed on to the related tribes by the Dieri. The admixture is evident in the case of the Itchumundi (Darling tribe, Kilparra-Mukwarra) language, "South-Central"[1] group, with tooth evulsion in their southern branch (Tongaranka), while the three other tribes (Wilya, Kongait, Bulalli) have adopted circumcision from their western neighbours.[2] They have the pointing bone made of the fibula of a dead man's leg, but they will also use the leg-bone of a kangaroo or emu. Like the Dieri, they bury the bone and burn it to kill the victim.[3] Another Darling tribe where we find the custom is the Maroura; they make a charm of human fat, emu bone, and human hair that enters the victim.[4] Considering that they practise exactly the reverse of "delayed burial"[5] it is quite conceivable that the lack of available human bones would lead to the substitution of an emu bone, still preserving the human element in the other ingredients of the mixture.

8. We had better drop the thread here, for fear of leaving another highway unnoticed by which this custom could have spread to the south-east. The Cape York Peninsula is occupied by tribes who speak languages of the "Northern" type, but there are reasons to suppose that the tribes with matrilinear descent entered the continent at this point, and assimilated much "Central" blood and culture on the way.[6] The Ngerrikuddi on the Pennefather River speak a "Northern" language.[7] The death-charm, or *ombo*, consists of a long, thin bone needle fixed into a wooden shaft, a spear in miniature. The bone from the emu or human leg is considered more efficacious than any other. They thrust it forwards with a long expiration and draw it back again with a corresponding inspiration. When it is buried under a fireplace the victim begins to pine away.[8] Proceeding to the south, we have the Castletown blacks on the Gilbert River; they may be Karandee or

[1] *See* Schmidt, "Gliederung," *Anthropos*, 1912, p. 484.

[2] A. W. Howitt, *l.c.*, p. 675.

[3] A. W. Howitt, *l.c.*, p. 360.

[4] R. W. Holden, *The Maroura Tribe*, in Taplin, *Folk-Lore, Manners, Customs and Languages of the South Australian Aborigines*, 1879, p. 18 (*cf.* Schmidt, "Gliederung," *Anthropos*, 1912, p. 586).

[5] "They get the body as quickly as possible under the ground" (Holden, *l.c.*, p. 18).

[6] Our "Central" tribes speak "Northern" languages (Schmidt), and have what Graebner calls a "Western Papuan" culture.

[7] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 471.

[8] W. E. Roth, "Superstition, Magic and Medicine," *North Queensland Ethnography*, Bull. 5, 1903, p. 32. A. Ward, *The Miracle of Mapoon*, 1908, p. 120.

Kundara, but, at any rate, their territory falls within the area of "Northern" languages. They seem to practise both simple and delayed burial.[1] The leg- and arm-bones of the men are usually put at the end of the spears, as they believe it gives them the strength of the man whose bones they carry.[2] Another group of tribes with "Northern" languages are those speaking the Princess Charlotte Bay dialects.[3] All complaints of a serious nature, from malaria to syphilis, are ascribed to the action of a particular charm, formed of a pointed piece of human fibula stuck with wax on to a reed spear.[4] In other parts of the Peninsula sickness is attributed to (*a*) sorcery practised by means of a young man's shin-bone, (*b*) the bone of a kangaroo or native companion, (*c*) a wooden splinter, believed to be a spear tip. All bone charms are called *mo-kad* (kokominni); the most potent is the *mar* (a young man's) *mokad*, then there is *nganda* (kangaroo),[5] *mokad*, etc. The Kalkadoon in the Leichhardt-Selwyn district have pointers made of the human forearm or an emu bone; the sharpened end is sometimes fashioned like a fish-hook, probably to indicate that the sorcerer is fishing for the soul, the life-blood of his victim. These examples of the customs we are considering refer to tribes with "Northern" languages, situated to the north of the "South Australians," who must also have migrated through the Cape York Peninsula. The latter probably held the Peninsula before they were replaced by a back-wave of "Northern" tribes pressing in a west-easterly direction and then turning from the south to the north.[6] To the west of our "Southern" tribes we have two off-shoots of the Arunta linguistic group, the Undekerebina and Yaroinga. In addition to "pointing" by the ordinary method, the Yaroinga doctor "shoots" the pointer with a sharp push from the open palm of one hand along the prongs of a forked stick.[7] Both the Kalkadoon and the Yaroinga made use of the *chiruko*, a short emu bone (from 2 to 2½ inches long) filed to a point. It is placed underground with the point up in the situation where the

"Rolled up in bark and placed on a kind of platform eight feet from the ground" (A. C. Bicknell, *Travels and Adventures in Northern Queensland*, 1895, p. 101); this is a chief's grave. The usual method, however, is another form of delayed burial ("To lay the body on its back with the knees bent upwards until it is quite dried. They are then taken away and placed in some hollow tree") (*ibid.*, pp. 101, 102).

"On each side of the grave we found posts pointed with large tufts of feathers on the top" (*ibid.*, p. 102). This looks like a parallel to the curious grave posts of the Melville Islanders (*cf.* Spencer, *Native Tribes of the Northern Territory of Australia*, 1914, p. 228; H. Klaatsch, "Schlussbericht über seine Reise nach Australien," *Zeitschrift für Ethnologie*, 1907, pp. 678, 679; A. Searcy, *In Australian Tropics*, 1907, p. 238).

[2] *Idem*, *l.c.*, p. 105. They are cannibals' flesh dried as trophy (*l.c.*, p. 104).

[3] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 451.

[4] Roth, *l.c.*, p. 33.

[5] Roth, *l.c.*, pp. 32, 33. *Mokad*, evidently the same word as the Dieri *moku*.

[6] *Cf.* Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 813.

[7] W. E. Roth, *Ethnological Studies among the North-West-Central Queensland Aborigines*, 1897, p. 156.

victim has been expelling one or other of the emunctories.[1] We tabulate these data as follow :—

	Human.	Animal.	Stick.	Platform.	Cannibalism.	Earth.
Undekerebina ...	R.E.S. 156	—	—	R.B. 396	—	—
Yaroinga... ...	,,	R.S. 32	—	,,	—	—
Kalkadoon ...	,,	,,	—	—	R.E.S. 166	—
Koko-minni ...	R.S. 32	R.S. 32	R.S. 32	R.B. 370	—	—
Ngerrikuddi ...	R.S. 32	R.S. 32	—	R.B. 368	Ward 121	—
Princess Charlotte Bay ...	R.S. 32	—	—	R.B. 371	—	—
Castletown tribe	Bicknell 105	—	—	R.B. 101, 102	R.B. 103, 104	R.B. 101, 102

That is, we have seven tribes with the "human" form of the pointing bone (some have the other forms in addition), and six out of seven practise platform burial.[2]

9. The Mitakoodi and the Mykoolon belong to the Bundjil group of languages ; a "Southern" island engulfed by the northern sea.[3] Hence the complexity of their culture and burial customs, for they seem to have all three methods of disposal of the dead (platforms, anthropophagy, burial).[4] The Limbeen-jar-golong are demons whose name means that they live in the bark of the tree. They are like a black fellow but all bones, skeletons with eyes like stars, hands or claws like talons. They carry a stick with a crook in their hand called "*wommalongo*," and it is with these sticks that the Limbeen-jar-golong of hostile tribes can kill at a distance, while those of their own tribe are friendly.[5] We do not know whether they have also got the "human" form of the pointing bone, but the pointing stick used by a ghost seems to indicate as much. Another tribe of this group are the Mitakoodi. They use the "human" pointing bone.[6] They have, however, conserved the South Australian custom of simple earth burial.[7]

10. The same great linguistic group which we have been considering in the case of the Dieri has also a northern branch. The Goa belong to this "North-Central" group of "Southern" languages,[8] and we find them in possession of the pointing

[1] Roth, "Superstition, Magic and Medicine," 1903, *Bull. N. Q. E.*, v., p. 32.

[2] I cannot find any data of the disposal of the dead among the Kalkadoon. R.E.S. = W. E. Roth, *Ethnological Studies among the North-West-Central Queensland Aborigines*, 1897. R.S. = W. E. Roth, "Superstition, Magic and Medicine," *Bulletin of North Queensland Ethnography*, 1903, v. R.B. = W. E. Roth, "Burial Ceremonies and Disposal of the Dead," *North Queensland Ethnography*, Bull. ix.

[3] *Cf.* Schmidt, "Gliederung," *Anthropos*, 1914, ix, p. 990.

[4] Ed. Palmer, "Notes on some Australian Tribes," *Journ. Anthr. Inst.*, xiii, pp. 283, 298.

[5] Palmer, *l.c.*, pp. 291, 292.

[6] Roth, *Ethnological Studies*, p. 153.

[7] Idem, *Burial*, p. 395.

[8] Schmidt, "Gliederung," *Anthropos*, ix, pp. 1007.

bone.[1] Then there are the Kia or Proserpine River aboriginals,[2] and the Pitta-Pitta and Ooloopooloo, who close the chain and lead us back again to the "South-Central" languages.[3] Like the Dieri group, with which they are connected by language and by a common frontier, these tribes bury their dead and cover them with logs.[4] They practise subincision,[5] and, like all other Queensland tribes, they show many points of contact with the Centre. Their method of pointing with a human bone has been described at length by W. E. Roth. Like the Dieri, they draw the patient's life-blood out and keep it in the bone receptacle, which is connected by a string with the pointer. Yet we should say that the Dieri did not get the custom from them but from the Central tribes, for it is a laymen's business among them. The Queensland tribes reserve this privilege for the caste of "doctors."

11. We have assumed that the present inhabitants of the Cape York Peninsula with "Northern" languages are a back-wave from "Northern-Central" tribes, and here laymen exercise the noble art which is confined to doctors in Queensland. Probably the general use is a later development, for in the Anula and Mara tribes on the coast of the Gulf of Carpentaria we still have traces of the special connection between the medicine man and the pointing bone. The medicine men are called *mangurni* by the Mara and *munkani* by the Anula. In the latter tribe the profession is hereditary in the members of the Falling-star totem, who are especially associated with the unfriendly spirits in the sky. The Anula have no sorcerers of a beneficent nature, the powers of the *munkani* only consisting in pointing bones.[8] Now *munkani* is evidently the same word as *manguni* used for the death-bone in the Boulia and Cloncurry district. The word for medicine men is "possessor of the death bone" in both these areas.[9] We assume that cannibal or platform burying tribes related to the Anula carried the custom of the pointing bone along the Gulf of Carpentaria coast into Cape York Peninsula, whence it was passed on to the neighbouring tribes with "Southern" languages.

12. The junction of the Culgoa and the Darling approximately corresponds to the part of the continent where the various groups of languages meet. To the

[1] Roth, *Ethnological Studies*, pp. 152, 153.

[2] Roth, "Superstition, Magic and Medicine," 1903, *Bull. N. Q. E.*, v., p. 32.

[3] Schmidt, "Gliederung," *Anthropos*, 1914, 980. *Idem*, "Die Personalpronomina," *Ak. d. Wiss. in Wien. Denkschriften*, Bd. 64, Abth. 1, 1919, pp. 57, 100.

[4] Roth, *Ethnological Studies*, pp. 152, 153.

[5] Roth, *Ethnological Studies*, p. 175.

[6] W. E. Roth, *Ethnological Studies*, p. 152.

[7] *Cf.* Spencer and Gillen, *Northern Tribes*, p. 456.

[8] *Cf.* Spencer and Gillen, *Northern Tribes*, pp. 488, 489.

[9] Roth, *Ethnological Studies*, p. 152. The same word for bone is found in the South Central and Bundjil languages (*cf.* Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 752; Curr, *The Australian Race*, iv, pp. 32, 33). Certain pointing bones resemble the bone worn in the nasal septum (Eylmann, *l.c.*, p. 215), but this is the official badge of a Warramunga and Worksia medicine man, and also used for projecting it into the body of the patient (Spencer and Gillen, *l.c.*, pp. 485, 486).

east of the Darling languages, and to the south of the "North-Central" group, we have the cultural and linguistic unity formed by the Wiradjuri-Kamilaroi and minor tribes. According to Father Schmidt, the Wiradjuri-Kamilaroi group originated first out of the Yuin-Kuri stock, with others allied to the Wakka and Kabbi, and to this mixture was superadded an infusion of "North-Central" elements.[1]

Notwithstanding the complicated construction of this hypothesis, it seems to under-rate the number of ethnic strata which constitute this group rather than to over-rate them. We must add the agreements between this area and the Central tribes. Of course, there are various ways to account for these parallels. The emu-footed "High-Gods" of the Centre are probably anterior to Arunta immigration, and are derived from a previous stock which is also represented in the Wiradjuri-Euahlayi group (Yuin ?), while the child-birth beliefs and the *intichiuma* ceremonies of the Euahlayi must be derived from the Centre, through the Kupuro-Wungko-Kurkilla-Bunburi tribes and the Wollaroi.[2] The neighbours of the Wollaroi are the Euahlayi.[3] These now have simple earth burial, but in the olden time some of the tribes would keep a body at least five days and put it in hollow trees. After this they would bury the body, expecting it to "come up white"—that is, to be incarnated as a white man.[4] Here we have the faint trace of a connection between delayed burial and the belief in reincarnation; and both point to the Centre as their former home. We are also told that they might easily extract the small joint-bones with which to make poison.[5] Bone is sometimes used for making their pointing apparatus, but wood is the usual material for the pointing stick or *goowera*.[6] Ligature and life-blood are found here, as in the Dieri custom[7]; moreover, in the case of the Euahlayi we have an exact parallel to the use of the *kuja-mara*, the Dieri death-plant.[8] These analogies with the Dieri custom seem to indicate that the Euahlayi did not receive the pointing bone from the "North-Central" group on the opposite side of the Culgoa, but that they brought it along with them from the Wiradjuri stock to their present hunting-grounds in the north. The use of a large pointing stick for men and a small one for women reminds us of another wooden object which is differentiated in a similar manner—the bull-roarer. Now the Wiradjuri have

[1] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 785.

[2] *Cf.* F. Graebner, "Wanderung und Entwickelung sozialer Systeme in Australien," *Globus* pp. 90, 223.

[3] Parker, *l.c.*, p. 1.

[4] Parker, *l.c.*, p. 91.

[5] Parker, *l.c.* The small bones of the wrist of a dead person are also pounded up and put into food, in honey or water, as a poison (Parker, *l.c.*, p. 40).

[6] Parker, *l.c.*, p. 33.

[7] Siebert, *l.c.*, p. 55. Life-blood also in Queensland (Roth, *Studies*, p. 155).

[8] *Cf.* Siebert, *l.c.*, with Parker, *l.c.*, 32.

two bull-roarers—a large one (male) and a small one (female)[1]—and they have also a peculiar form of pointing bone. Some of the medicine men use a small piece of wood, shaped like a bull-roarer, placed close to the fire and pointing towards the intended victim. When the instrument becomes quite hot it springs up and enters the man.[2] The Wiradjuri must have received the custom from the Dieri (on account of the specific analogies between Dieri and Euahlayi), with the Darling tribes as intermediaries.[3] The Wiradjuri practise simple earth burial,[4] so that they would easily substitute the wooden instrument for the human bone. However, the charm called *yanguru* (described by Howitt)[5] looks very much like a modified survival of the bone pointer. If the *goowera* of the Euahlayi is historically connected through the bull-roarer-shaped pointing stick of the Wiradjuri, and through the Darling forms with the Dieri, this does not prove that the northern neighbours of the tribe had no influence whatever on the group of customs we are considering, for it was these who brought delayed burial and the magical use of the small joint-bones with them.[6]

13. The use of the pointing bone seems to have filtered down to the south-east corner from the Gulf of Carpentaria by two principal routes. One of these is represented by the following series: Queensland tribes with "Northern" languages . . Goa, Pitta-Pitta . . . burra tribes . . . Coastal tribes with "Eastern" languages.[7] If the Maryborough tribes rub the dead man's kidney fat on the point of their spears to make them deadly,[8] this reminds us of the Castletown custom of using the dead man's bone as a spear-tip. The Kumbaingerri believe that a human leg-bone ground to a point and pointed at them causes sickness or death.[9] These tribes are in contact with the Yuin-Kurri group to the south. The Awabakal were one of these,[10] and they seem to have had the magical bone practice in close connection with their medicine men. They obtain it from the corpse by sleeping on the

[1] R. H. Mathews, "The Burbung of the Wiradjuri Tribes," *Journ. Roy. Anthrop. Inst.* xxv, p. 298.

[2] Howitt, *l.c.*, p. 360.

[3] They occupy the territory between the "South-Central" and Wiradjuri linguistic group. On the two bull-roarers in the Itchumundi nation, *cf.* Howitt, *l.c.*, p. 675.

[4] Howitt, *l.c.*, p. 466.

[5] Howitt, *l.c.*, p. 361.

[6] Parker, *l.c.*, 91. Following instance seems to refer to a Ngeumba (Wailwun) or Barkinji custom, which was regarded as an unheard of thing by the Kamilaroi:—A black fellow died on the Barwon, below Bourke. Two days after that a "bad black fellow" took up the body and skinned it. He kept the skin and a bone, with which he believes he can kill anyone (W. Ridley, "Report on Australian Languages and Traditions," *Journal*, 1872, p. 272).

[7] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 773.

[8] Howitt, *l.c.*, p. 753. They eat their own dead but not the enemy.

[9] E. Palmer, "Notes on Some Australian Tribes," *Journ. Anthr.*, xiii, p. 293. Putting a hawk bone into fire is another method.

[10] Schmidt, "Gliederung," *Anthropos*, 1913, p. 532.

grave.[1] These medicine men are next kin to the body-snatchers mentioned by Parker, who steal parts of the skeleton to make poison-bones.[2] The coastal tribes referred to by Parker practise platform burial, and it was through them that the Awabakal with simple burial[3] learnt the use of the human bone for magic. The circumstance that those who desired to come into possession of this redoubtable instrument must despoil the graves for that purpose must undoubtedly have helped to remove it from the sphere of the common mortal to that of the medicine man.

14. We are again compelled to break off at this point, for the Yuin tribes border on Victoria and we must consider the state of things in the Narrinyeri group of tribes before forming an opinion as to the origin of the practice as found in Victoria. The Narrinyeri are regarded as the representatives of a race with local organization and paternal descent, which inhabited Australia before the tribes with dual organization and maternal descent.[4] Father Schmidt finds linguistic reasons for supposing that the territory which at present is inhabited by Darling tribes formerly belonged to the Narrinyeri,[5] who were partly assimilated and partly driven to the south by the present Darling tribes. The idea of a former connection between Narrinyeri and "Western Papuan" (Graebner) agnatic tribes of the Centre has been hinted at,[6] although as yet it can hardly be said to be beyond doubt.[7] However that may be, the Narrinyeri possess a special form of the custom we are considering and this form is only shared by their immediate northern neighbours. "There is a deadly practice of injury possessed by some of the tribes of the Murray River, but I have never heard of it in any of those east of the Darling River. A piece of bone is sharpened to a very fine point and is inserted into a decaying corpse, being left there for some time until it becomes thoroughly saturated with the poison. It is then wrapt up with some of the putrid matter and kept ready for use. A very slight stab with it is said to cause death."[8] This corresponds exactly to the practice of the Narrinyeri in the south, and Taplin tells us that the custom of "*neilyeri*" was introduced about sixteen years ago from the Upper Murray.[9] The old men are well acquainted with the virulent nature of fluids from a corpse, and they resisted the attempts of the missionaries to make them bury their dead (give up platforming) in order to be able to practise this form of sorcery. "Without corpses there could be no *neilyeri*"[10] . . . . without delayed burial no pointing bone.

[1] L. E. Threlkeld, *An Australian Language as Spoken by the Awabakal*, 1892, p. 48.

[2] Parker, *l.c.*, p. 92.

[3] *Cf.* N. W. Thomas, "Disposal of the Dead," *Folk-Lore*, xix, p. 406, Pl. X (Map).

[4] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 762.

[5] Schmidt, *l.c.*

[6] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 807.

[7] N. W. Thomas, "Disposal of the Dead," *Folk-Lore*, xix, p. 390. On delayed burial platforms and the connection of this area with the centre.

[8] A. L. P. Cameron, "Notes on Some Tribes of New South Wales," *Journ. Anthrop. Inst.*, 1884, p. 362.

[9] Taplin, *l.c.*, p. 29.

[10] Taplin, *l.c.*, pp. 30, 31.

They prick the enemy when asleep with a bone inserted into a corpse and this is sufficient to kill him through blood-poisoning.[1] In this case the pointing bone has developed into something more than an imaginary weapon, and we should not be certain that we have to do with a local development of the same custom but for a casual remark of Taplin. He says they are dreadfully afraid of it, "the *mere pointing* of the neilyeri at them makes them feel ill."[2]

When they insert a bone into the putrid corpse they are acting in accordance with the well-known principle of sympathetic magic: "contact with death brings death," and it is quite accidentally that they discover a real poison. The difference between this practice and the custom of the northern tribes (Anula, Warramunga) is that the latter only make the pointing bone when the flesh has disappeared,[3] so that there is no putrid corpse and pointing bone at the same time. In this case we have a secondary displacement of the original custom, a bone is kept from one corpse and only made use of when it can be strengthened by the additional power of the next.

15. The Darling tribes seem to be composed of two strata, a Narrinyeri-like substratum with a matrilinear (Dieri-like) layer above it.[4] According to the beliefs of the Bungyarlee and Parkungi, sickness is caused by an enemy using a *yountoo*.[5] Here the use of fire, the burying and gradual burning of the bone, corresponds exactly to Dieri ways,[6] but the latter do not use the flesh of a second corpse,[7] nor do they bring the bone into touch with the body of their victim. These elements of the custom might be traces of a former Narrinyeri-like population, as they agree with the "*nielyeri*" idea. Ethnical intermixture is quite evident and undeniable for the Wotjobaluk; they talk a Kulin (patrilinear) dialect[8] and have the social organization of the Buandik tribes,[9] with the two matrilinear classes, Krokitch-Gamutch and subtotems. Thus far we have reason to ascribe a Kulin and a Dieri-Wiimbaio-like element to the Wotjobaluk, but, as we shall proceed to show, there is also a strain of Central influence superadded to these. The Wathi-Wathi group of tribes have Alcheringa beings,[10] and the mortuary totem system of the Wotjobaluk is

[1] Taplin, *l.c.*, pp. 30, 31.

[2] Taplin, *l.c.*, p. 31.

[3] *Cf.* Spencer and Gillen, *Native Tribes*, pp. 498, 553.

[4] Schmidt, "Gliederung," *Anthropos*, xii, xiii, p. 766.

[5] F. Bonney, in *Journ. Anthr. Inst.*, xiii, p. 130.

[6] Siebert, *Globus*, pp. 97, 55. *Cf.* also M. Moorhouse, *South Australia*, in Papers, "Aborigines: Australian Colonies," 1844, p. 357; and Taplin, *l.c.*, "Pando and Blanchewater."

[7] It is, however, wrapped in fat and emu feathers, Gason, in Curr, ii, p. 65.

[8] Schmidt, "Gliederung," *Anthropos*, 1912, p. 1036.

[9] *Cf.* Schmidt, *ibid.*, 1031. *Cf.* also Graebner, in *Globus*, pp. 90, 223.

[10] A. L. P. Cameron, "Notes on Some Tribes of New South Wales," *Journ. Anthr. Soc.*, 1884, p. 368.

connected with a belief in reincarnation,[1] both characteristic features of the Central area. The same current of migration which introduced reincarnation into Western Victoria must also be held responsible for introducing platform burial into the south-western corner of Victoria. The Wotjobaluk themselves practise simple burial,[2] but the Mukjarawaint, who were closely connected with them and attended the same initiation ceremonies,[3] had platform or tree burial. The dead man's father (own or tribal) made magic of the fibula.[4] The name of this instrument is *yulo*, a word which is perhaps connected with *yunto*, of the Darling River tribes.[5] At any rate, the custom itself points to these tribes, for we find two elements hitherto only noticed on the Darling; pointing is combined with throwing, and a bit of dead man's flesh is tied to the bone. Kangaroo sinews were used for this purpose, hence the other name of the *yulo* was *jinert* (sinews). The whole was anointed with dead man's fat and raddle, after which it was hung over the fire to make it "strong"—another Darling (and Dieri) feature. When used it was swung round by a length of about 5 feet of kangaroo sinew and then thrown in the direction of the intended victim.[6]

16. The appearance of a falling star indicates that the magic bone has taken effect, and the "Bangal" has caught another victim whom he has deprived of his fat.[7] For us it indicates something more—the historic connection and common source of all these practices. It solves the riddle propounded by the Anula at the northern extremity of the continent, and explains why the profession of medicine man, whose only occupation is "giving the bone" to his fellow-man, should be hereditary in the falling-star totem.[8]

The Arunta will not eat mushrooms and toadstools, believing them to be fallen stars and endowed with *Arungquiltha*,[9] this being the word for the magical potency of a bone or stick which has been "sung" over, and thus made ready to be used as a pointing-bone.[10]

17. In all contributions of the modern "culture-history" school to the problems of Australian ethnology the Kurnai figure as the most primitive of tribes, as the starting-point for ethnological and sociological deductions. "From the Arunta

[1] Howitt, *l.c.*, p. 144. R. H. Mathews, *Ethnological Notes on the Aboriginal Tribes of New South Wales and Victoria*, 1905, p. 91.

[2] Howitt, *l.c.*, 453.

[3] *Idem*, *ibid.*, p. 615.

[4] *Idem*, *ibid.*, p. 453.

[5] *Cf.* above.

[6] Howitt, *l.c.*, p. 369. *Cf.* p. 368 *ibid.*

[7] Howitt, *l.c.*, p. 369.

[8] Spencer and Gillen, *Northern Tribes*, pp. 488, 489.

[9] Idem, *Native Tribes*, p. 566. For other cases of a falling star indicating death in Australia, *cf.* G. F. Moore, *Diary of an Early Settler in West Australia*, 1830–41, 1884, p. 10; G. Grey, *A Vocabulary of the Dialects of South Western Australia*, 1841, p. 11; Kable, "Myths of the Lachlan River Aborigines," *Science of Man*, ii, 1899, p. 194.

[10] Idem, *Native Tribes*, p. 537.

to the Kurnai " is the direction taken by the speculations of all evolutionist authors, and the new school goes exactly in the opposite direction. The character of their language as well as their geographical position in the extreme south-east of the continent are sufficient to show that it is here, if anywhere, that we can expect to find representatives of the first inhabitants of Australia; but this, of course, does not prove that the first inhabitants were the most primitive, or that the Kurnai are unadulterated, unmodified representatives of this Australo-Tasmanian population. Indeed, even Father Schmidt acknowledges the possibility that more recent currents may have contributed their share to the material culture of the Kurnai, though why we should suppose that it was only the technical and not also the religious and sociological culture which was open to influence from the north and west I dô not know. The Alcheringa myths certainly belong to the culture-complex of the Central tribes, and the Kurnai have them in a very characteristic setting.[1] This points to another stratum of population related to the Central Australians, who migrated to the south-east carrying certain customs and beliefs with them, but adopting the language of the aboriginals by whom they were assimilated.[2] Probably we should find more points of contact if our knowledge of the Kurnai could be compared in quantity and quality to our knowledge of the Central tribes,[3] but, at any rate, we have another important link in the custom of delayed burial.[4] As might be expected, we find the pointing bone, although in the modified form of a spear-thrower, rubbed with human or kangaroo fat and "roasted" in the usual manner.[5]

18. I think we have succeeded in showing (a) *that the custom of killing an enemy by pointing the fibula of a dead man at him must have originated in a definite area, whence it spread over the whole Australian continent;* (b) *that this area could only be the territory occupied by the "Central" tribes with "North Australian" languages, who practised various forms of delayed burial or ritual endophagy,*[6] *as it is only in the case of these two forms of disposal of the dead that the necessary bones were available;* and (c) *that there is a tendency to substitute*[7] *other materials, kangaroo or emu-bones,*

[1] *Cf.*, Howitt, *l.c.*, p. 487.

[2] The legend of the first Kurnai as pelican perhaps indicates this migration (Howitt, *l.c.*, p. 485).

[3] *Cf.* the remark of A. R. Brown, "Three Tribes of Western Australia," *Journ. Roy. Anthr. Inst.*, 1913, p. 191: "Our knowledge of these tribes is very incomplete and unsatisfactory" (referring to the Kurnai).

[4] Howitt, *l.c.*, p. 459. *Cf.* the discussion on this point between Graebner and Schmidt. (Schmidt, *Ursprung der Gottesidee*, 1912, p. 198, note 2; Graebner, *Anthropos*, iv, 70 *Globus*, xcvi, p. 344).

[5] Howitt, *l.c.*, pp. 361, 362. Bones of deceased relatives carried about by Tasmanians (L. Roth, *The Aborigines of Tasmania*, 1899, p. 61).

[6] *See* Steinmetz, "Der Endokannibalismus," *Mitteilungen der anthr. Ges. in Wien*, XXVI., pp. 1–60.

[7] For a human bone, which is most appreciated for the purpose, a portion of a kangaroo's or emu's leg-bone may be substituted (Roth, *Ethnological Studies*, 1897, p. 152). The most potent material to make use of is a young man's shin-bone (Roth, "Superstition, Magic and Medicine," *Bull. North Queensland Ethnography*, 1903, p. 32).

or sticks, for the human fibula, especially when tribes with simple earth burial borrow the custom from tribes racially connected with the groups in which the custom originated.

19. It is usually supposed that there is a remote connection of some sort between the Australian tribes speaking "Northern" languages and the population of New Guinea and Melanesia.[1] Two such important customs as platform burial and circumcision[2] are found in this area, and as we are concerned here especially with the former, we shall leave other ethnological problems aside and turn straight to our main question. Dr. Rivers tells us that the custom of preservation is associated with the chiefs in Melanesia.[3] This is also the case among the Mafulu, a Pygmy-Papuan mountain people of New Guinea,[4] in Borneo,[5] in Nias,[6] and in Madagascar.[7] The reason why this form of disposal of the dead should be reserved to chiefs and nobles is a racial one, according to Dr. Rivers. As he also regards the cult and special importance of the skull as characteristic of the betel-people (the second kindred stream of migration),[8] it would fit in with his general scheme if we ascribed delayed burial and the magical use of human bones to the kava-people, who are responsible for the introduction of totemism in Melanesia.[9] At any rate, our view that the magical use of the human bone and delayed burial are elements of the same complex is fully justified by evidence from New Guinea and Melanesia.[10] The Podari, one of the "bush" tribes of the inland district between the Paho and Oriomo rivers, bury their dead, but their sorcerers are addicted to corpse eating.

[1] *Cf.* F. Graebner, "Kulturkreise in Ozeanien," *Z. f. E.*, 1905, p. 36.

[2] Even the speciality of Central tribes, the "terrible rite" (subincision) is found in New Guinea (R. Thurnwald, *Die Gemeinde der Bánaro*, 1921, p. 28); *cf.* Róheim, *Australian Totemism*, 1925, 445.

[3] W. H. R. Rivers, *The History of the Melanesian Society*, 1914, ii, p. 276.

[4] R. W. Williamson, *The Mafulu, Mountain People of British New Guinea*, 1912, p. 256.

[5] H. Ling-Roth, *The Natives of Sarawak and British North Borneo*, 1896, i, pp. 149, 160.

[6] Frobenius, *Weltanschauung der Naturvölker*, 1898, p. 55.

[7] *Idem, ibid.*, p. 52.

[8] Rivers, *l.c.* ch. xx, p. 277.

[9] Rivers, *l.c.*, ii, p. 337. *Cf.* the eminently totemic organization of the Central Australians, whose intichiuma ceremonies may be compared to the magical dances of Melanesian secret societies (another "kawa" element according to Rivers). Of course this cannot mean the "kawa" (*i.e.*, Polynesian) origin of the Central Australians; the problem must have a different solution (*cf.* my book quoted above).

[10] Pointing occurred at Mabuiag. The Torres Strait islands form a sort of connecting link between Central Australia and New Guinea. (*Cf.* Schmidt, "Die Stellung der Aranda," Z. *f. E.* 1908, p. 874. *Idem* "Die soziologische und religiösethische Gruppierung der austr. Stämme, *ibid.*, 1909, p. 346.) A crocodile tooth was painted red, filled with various kinds of plants, and finally rubbed all over with the fat of a human corpse. By the aid of a bent tree the tooth was shot forward, and at the same time a spiritual tooth entered the victim, who then died (*Reports of the Cambridge Anthropological Expedition to Torres Straits*, 1904, v, p. 326). *Cf.* the "crocodile thing" of the Western Islanders: "With a great deal of posturing he points the model and a spear at the person or house" (*ibid.*, vi, p. 228). The use of human fat may be the survival of a purely "human" pointing bone. For "delayed burial," cf. *Reports*, v. p. 258; vi, p. 136.

They will kill a sleeping man by lightly striking him with a large piece of vine, which when dry has all the appearance of a human bone. Besides this a piece of real human bone was pointed at the victim.[1] Burial is the prevalent custom of the Kai in New Guinea, but sometimes the corpse will be corded tightly and set up in a corner of the house. There is a bamboo tube to conduct the fluid of the putrefying corpse into the earth. After a certain time the wrapping is opened, and the bones are buried, excepting the lower jaw[2] and one of the lower arm-bones. The arm-bone gives success in the chase, especially if the defunct was a great hunter, whilst the lower jaw reminds the man who inherits it that it is his duty to revenge the death on the devil magician. When the luck in hunting begins to wane the bone is interred, as this is regarded as a sign that the ghost has definitely left for the other world. Sometimes nose-pins or lime spatulæ are made of the bones, and the hair of the dead man is often worn as a memorial.[3] On the Marshall Bennets the jawbone of the dead man is worn by his widow, and his vertebræ and phalanges by his wife's brothers and his own children. The grave is re-opened after a certain time, and the skull bones are made into spatulæ, with which certain relatives feign to take lime.[4] Still more important is the magical use of human bones as weapons. First, we have the poisoned arrows of the Solomon Islands and the New Hebrides. The point is of a dead man's bone and, therefore, imbued with *mana*, it has been tied on with powerful *mana* charms, smeared with "hot and burning" stuff[5] as the wound is meant to be, and well prepared for use with charms. In the Lepers Island there is a shaft of reed, a fore-shaft of hard wood, and a point of human bone. It is the human bone more than anything else which gives the arrow its efficacy, and the bone of any dead man will do because any ghost has the power to work on a wounded man, but a powerful ghost is naturally of greater value. The real Lepers Island arrow (*bicue*) is made with a broad white head of human bone, with jagged edges, nine or ten inches long. There was a man who out of affection for his dead brother dug him up and made arrows from his bones, and everybody believed that the dead man was always there to help him.[6] The existence of a "poison" substance

[1] W. N. Beaver, *Unexplored New Guinea*, 1920, p. 83.

[2] *Cf.* "Sometimes the father or mother carried the lower jaw as a memento" (Howitt, *loc. cit.*, p. 459) (Kurnai). "The special part of the body to which the ghost clung was the lower jaw-bone" (J. Roscoe, *The Baganda*, 1911, p. 282). *Cf.* J. Spieth, *Die Ewe-Stämme*, 1906, p. 100.

[3] Ch. Keysser, *Aus dem Leben der Kaileute*, 1911, p. 82. Neuhauss, *Deutsch Neu Guinea*, iii.

[4] C. G. Seligman, *The Melanesians of British New Guinea*, 1910, pp. 721–27. At Kiriviña the skull of a dead chief was preserved as an heirloom; the small bones of his body were made into lime spatulæ to which his name was given, and which were sacred to his memory (G. Brown, *Melanesians and Polynesians*, 1910, p. 390).

[5] *Cf.* the "roasting" of the pointing implement in Australia.

[6] R. H. Codrington, *The Melanesians*, 1891, pp. 307–310. *See* also F. Speiser, "Forschungreisen in den Neuen Hebriden," *Z. f. E.*, XLVI., 1914, p. 461. Spear and arrow heads are made out of the bones. Wooden ancestral statues (in Ambrym) are substitutes for the skull cult.

in addition to the dead man's bone, reminds us of the Narrinyeri. Another magical bone weapon which reminds us of what we found in Northern Queensland is the spear tipped with a human bone. In New Britain the arm and leg bones of the men they have devoured are attached to the spears; this adds the strength of the dead man to the muscles of the living and protects him from the revenge of the dead man's relatives.[1] The Siara of New Ireland (representative of the kava-people) have platform burial. After a time the skull and the arm-bones are removed. The skull is re-buried after a special ceremony, but the arm bones are kept to be made into a special kind of spear (*tuánere*), which is only used by relatives of the deceased, and is believed by them to bring the assistance of the ghost in battle.[2]

20. A characteristic feature of the area with delayed burial is the repetition of death in violent form. The aggressiveness and hostile feelings of the survivors, originally directed against the dead man, are now projected[3] beyond the tribal frontier, in the form of a head-hunting or revenge-expedition against the alleged magical murderer.[4] The magical power of the leader in this revenge-expedition is

[1] W. Powell, *Unter den Kannibalen von Neu Britannien*, 1884, p. 88. Common people are thrown into the sea, chiefs set up between the branches of trees, p. 223.

[2] Rivers, *l.c.*, ii, p. 543. Parkinson, *Dreissig Jahre in der Südsee*, 1907, p. 308. For other cases of pointing, not with bones but chiefly with sticks, in New Guinea, Melanesia and Indonesia, *see* F. Vormann, "Zur Psychologie, Religion u.s.w. der Monunbo Papua," *Anthropos*, 1910, p. 410; G. Peekel, *Religion und Zauberei auf dem mittleren Neu Mecklenburg*, 1910, p. 101; Skeat and Blagden, *The Pagan Races of the Malay Peninsula*, 1906, ii, p. 362.

[3] As for projection, *cf.* the case in C. Strehlow, *Die Aranda und Loritja Stämme in Zentral-Australien*, IV., Abt. Teil II., 1915, p. 20. That the second death is a repetition of the first is proved by the identification of the death-bone, a part of the dead man, with the victim. The bone is put into a hole and burnt; as the bone is consumed by fire it enters the victim who dies in consequence (Howitt, *N. T. of S. E. A.*, 1904, p. 360). The bone contains the soul (Siebert, *Globus*, 97, p. 55) or the life-blood of the victim (W. E. Roth, *Ethnological Studies*, p. 155; idem, *Superstition*, p. 34). The Koko-minni combine the pointing with sympathetic magic (W. E. Roth, *Superstition*, p. 35). If the bone is burnt the victim dies; the only way to save him is to steep the bone in water (Siebert, *Globus*, 97, p. 95). Among the Pando and Blanchewater blacks two or three old men chew the bone of some defunct friend. They then make little graves in the hot ashes, and put in the bone, calling it by the name of some enemy. When the bone is consumed, the man they mentioned will die (Taplin, *The Narrinyeri Tribe*, p. 26).

[4] *Cf.* R. Hertz, "La Représentation Collective de la Mort," *L'Année Sociologique*, x, pp. 65, 103, 130. J. Shakespear, *The Lushei-Kuki Clans*, 1912, pp. 200, 220. T. C. Hodson, *The Naga Tribes of Manipur*, 1911, pp. 115, 118, 122. E. H. Gomes, *Seventeen Years among the Sea Dayaks of Borneo*, 1911, pp. 74–76. H. Ling Roth, *The Natives of Sarawak and British North Borneo*, 1896, i, p. 258. G. A. Wilken, *De Verspreide Geschriften*, iii, 1912, p. 438. Spenser St. John, *Life in the Forests of the Far East*, 1862, i, pp. 63, 71. Ch. Hose and W. McDougall, *The Pagan Tribes of Borneo*, 1912, i, pp. 158, 187. J. C. E. Tromp, "De Rambai en Sebroeang Dajaks," *Tijdschrift voor Indische Taal-, Land- en Volkenkunde*, xxv, 1878, p. 118. O. D. Tauern, *Patasiwa und Patalima*, 1918, p. 140. J. G. F. Riedel, *De Sluik en Kroeshaarige Rassen tusschen Selebes en Papua*, 1886, p. 143. A. E. Jenks, "The Bontoc Igorot," *Department of the Interior Ethnological Survey Publications*, 1905, i, pp. 172–174. R. H. Codrington, *The Melanesians*, 1891, p. 257. The Wakelburra carry the body about "until the matter has been settled by the offender being punished" (Howitt, *N. T. of S. E. A.*, p. 472; Muirhead, in Curr, *The Australian*

derived from the dead man's hair or pointing bone, in his possession. Now the additional power regarded as a characteristic feature of a dead man in early societies is akin to the awe felt by the child with regard to adults, more especially its own parents. As a matter of fact, there is no hard and fast line between the veneration of old men, the superior powers attributed to them, and the increase of these powers caused by death. Just as the "magical" potency of age is a substitute for real strength, increasing in converse ratio as strength decreases, complete annihilation is over-compensated for by the supernatural power attributed to the dead man.

The leader of the revenge-party derives his magical power from the dead man, with whom he has identified himself, who originally must have been his own father, and in exogamic two class society is usually his father-in-law.[1] The arm or leg bone (as an emblem of this power) points to a less advanced group of humanity than the

Race, iii. p. 29). White mourning point worn till life has been taken for life (Dawson, *Australian Aborigines*, 1880, pp. 66–67). *Cf.* Collins, *An Account of the English Colony of New South Wales*, p. 379. G. Whitfield, *Newcastle*, in Curr, *Australian Race*, i, p. 324. R. Salvado, *Memorie storiche dell' Australia*, 1851, pp. 358, 359. R. Brough-Smyth, *The Aborigines of Victoria*, 1878, i, p. 107. G. Taplin, *The Narrinyeri*, 1878, p. 21. G. N. Teulon, *Bourke, Darling River*, Curr, *l.c.*, ii, 199. Howitt, *N. T. of S. E. A.*, p. 450.

[1] Hair of the dead man given to an initiate who makes a waist-band (Unmatjera) or a wailia-wailia (Kaitish). The wearing of these objects is supposed to make the inward parts of a man hot and savage, and it is his duty to avenge his father-in-law (Spencer and Gillen, *Northern Tribes*, pp. 510, 511). Hair and beard: Arunta and Loritja (Strehlow, *l.c.*, 1915, iv. Teil ii, p. 16). Arunta: girdle made of dead man's hair (Spencer and Gillen, *Native Tribes*, p. 490; idem, *Northern Tribes*, p. 556). The avengers have small twigs of the *Eremophilia longifolia* on their foreheads and in the septum of their noses (Spencer and Gillen, *Native Tribes*, p. 493; *Northern Tribes*, p. 567). This is the death tree (Strehlow, *l.c.*, iv, 1915, ii, 17; Howitt, *l.c.*, p. 448). Urabunna: hair cut off by younger brother (Spencer and Gillen, *Northern Tribes*, pp. 543, 544). Warramunga: whiskers cut off by son (Spencer and Gillen, *Northern Tribes*, p. 544). Made into cigar-shaped package called tana. When an avenging party is organized, the man carrying the tana and sometimes one of the arm-bones of the dead man, takes the lead. In possession of these objects he fights with the firm belief that he must be the victor. Warramunga and Tjingilli (Spencer and Gillen, *Northern Tribes*, pp. 544, 545). Gnanji: similar structure in possession of son, connected with ideas relating to reincarnation. The fibulæ are removed, red ochred; highly prized as pointing bones. Arm bones and collar used to summon relatives for blood revenge (Spencer and Gillen, *ibid.*, pp. 546, 547). Binbinga: hair cut by mother's brother's son. After the bones have been red-ochred on platform, the father takes one of the arm bones, red-ochres it, and ties it round with fur string. The messenger bearing this sacred emblem, called kallaua, is himself regarded as sacred (Spencer and Gillen, *ibid.*, pp. 547–554). Ngerrikudi: everything burnt except head, fibula bones and certain fleshy portions. Deceased sister's sons (potential sons-in-law) as avengers, carry fibula bones and eat flesh. When done with eating the flesh, he discovers the murderer and kills him with a pointer made of the fibula bones (W. E. Roth, "Burial Ceremonies and Disposal of the Dead," *North Queensland Ethnography*, ix, p. 370; idem, *Superstition*, ibid., v, 1903, p. 32). Lower Gulf Coast: ornament containing dead man's flesh instead of fibula bone (Roth, "Burial," *North Queensland Ethnography*, ix, pp. 370, 371). South-eastern districts of New South Wales: dead man's hair made into parcel called "murur," used in revenge expedition (R. H. Mathews, *Ethnological Notes on the Aboriginal Tribes of New South Wales and Victoria*, 1905, pp. 38–42). Dead man's hair and blood-revenge in New Guinea (J. H. P. Murray, *Papua or British New Guinea*, 1912, p. 111).

one we find as the bearers of delayed burial customs in Oceania, with their idea of the skull as a receptacle of the soul stuff.[1] This, again, may be regarded as an endopsychical recognition of the part played by mental functions in cultural development. We should not be surprised if we found the same custom in another form at a lower cultural level, in which bodily force still held undisputed sway as the most important factor in determining social status. The Father in the days of the Primeval Horde[2] was pre-eminently the strong man, and it is from his arm or leg-bone that the son derived the duty and the power to revenge his death. But that this reverential attitude was not without ambiguity is proved by the custom of splitting the death ceremony up into a sort of series which terminates by smashing the dead man's arm-bone,[3] the part which represents the whole, and is in other cases the magical weapon of the Avenger. However, we cannot penetrate further into these problems without a general ethnological and psychological analysis of "delayed burial" rites, and must, therefore, put off further hypothetical speculations for another occasion.

SKETCH-MAP SHOWING DISTRIBUTION OF CUSTOMS CONNECTED WITH THE POINTING BONE IN AUSTRALIA.

I.—POINTING BONE MADE OF HUMAN ARM- OR LEG-BONE. ▲

31, 32, 35, 41, 47, 48, 52 (northern group only), 53, 54, 55, 56 (western group only), 60, 62, 65, 71, 72, 73, 74, 75, 76, 77, 81, 89, 95, 132, 135, 138, 140, 141, 142, 150, 152, 155, 196, 201, 202, 203, 204, 209, 211, 223, 224.

II.—POINTING BONE MADE OF KANGAROO, EMU, ETC., BONES. ◭

42, 43, 44, 46, 47, 48, 49, 50, 51, 52, 54, 55, 56, 131, 132, 140, 141, 142, 196, 201, 209, 211, 222, 223.

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[1] W. H. R. Rivers, "The Concept of Soul-Substance in New Guinea and Melanesia," *Folk-Lore*, xxxi, 1920, p. 48. *Idem*, *ibid.*, p. 294.

[2] For the idea of social evolution accepted here, *cf.* Lang-Atkinson, *Social Origins and Primal Law*, 1903; Freud, *Totem and Tabu*, 1919.

[3] For mourning as a hostile manifestation of sorrow, *cf.* the ritual described by Spencer and Gillen, *Northern Tribes*, pp. 515–543. When the "breaking of the bone is performed, the spirit goes back to its final resting-place. In Mungarai tribe the ceremonies come to an end when the skull is smashed into fragments. Everything is buried except the long bones of the arms; these are kept for another two or three years by the mother, after which period all the bones are disposed of in a definite burial ceremony" (Spencer, *Northern Territory*, pp. 251, 256). *Cf.* for the burial of the arm bones as a final ceremony, J. A. Van Balen, "Jets over het Doodenfest by de Papoes aan de Geelvinksbai," *Tijdschrift voor Indische Taal-Land-en Volkenkunde*, xxxi, pp. 567, 571.

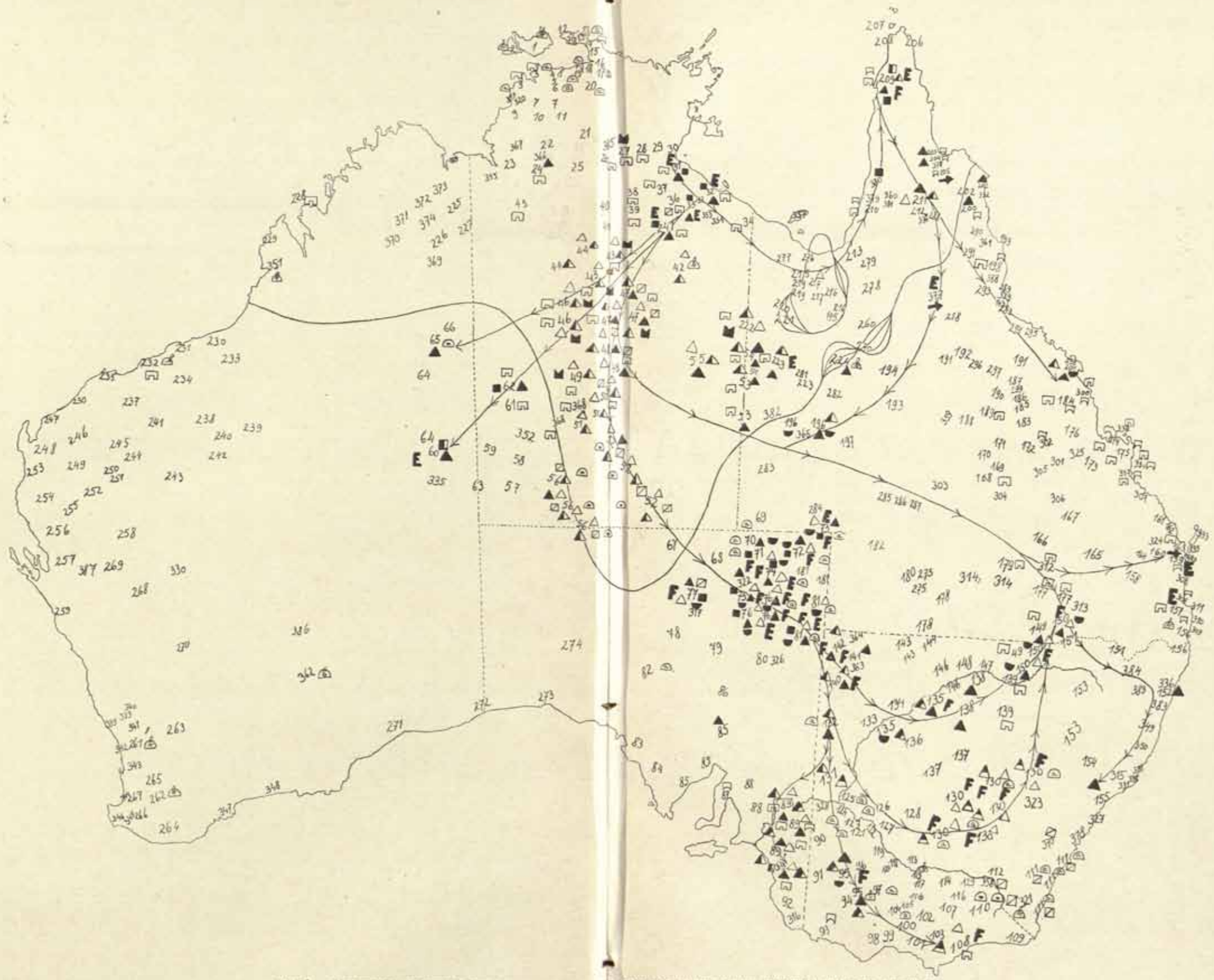


FIG. 1.—SKETCH-MAP SHOWING DISTRIBUTION OF CUSTOMS CONNECTED WITH THE POINTING BONE IN AUSTRALIA.

III.—Wooden Pointer. 

42, 43, 44, 46, 47, 48, 49, 50, 51, 52, 55, 56, 71, 72, 73, 74, 75, 76, 77, 81, 89, 108, 130, 150, 211, 217, 222.

IV.—Pointing Bone used in Revenge-expedition. 

31, 32, 35, 41, 62, 71, 72, 73, 74, 75, 76, 77, 81, 209, 380.

V.—Skull used in Revenge-expedition or as Drinking-vessel. 

60, 89 (G. F. Angas, *Savage Life*, 1847, I, 64), 209.

VI.—Human Hair in Revenge-expedition. 

41, 47, 48, 50, 52, 56, 77, 111, 112, 321, 375.

VII.—Fire applied to Pointing Bone. 

71, 72, 73, 74, 75, 76, 77, 81, 95, 108, 130, 132, 135, 140, 141, 142, 150, 209.

VIII.—Cord in connection with Pointing Apparatus. 

71, 72, 73, 74, 75, 76, 77, 81, 95, 135, 150, 196, 201.

IX.—Platform Burial and Anointing. 

3 (Sp. III, 250, C. I., 255), 26, 28 (Sp. III, 253), 27 (Sp. III, 251), 31, 32, 34, 35 (Sp. II, 547), 37 (Sp. III, 253), 38, 39 (Sp. II, 547), 41 (Sp. III, 245), 43 (Sp. II, 506, 515), 45 (Sp. III, 249), 46, 47, 48, 49, 50 (Sp. II, 506, 515), 53, 54 (Roth, "Burial," 396), 61, 62 (Strehlow, IV, 26), 89 (Taplin, 20), 108 (H. 459), 139 (*J.A.I.*, vii, 253), 149 (H. 467), 157 (H. 469; Roth, "Burial," 401), 163 (H. 470), 171, 174, 175 (H. 471; Roth, "Burial," 397), 177 (H. 467, 468), 179 (H. 467), 184 (Roth, "Burial," 397), 189 (C. III. 20), 192 (H. 474), 198 (Roth, "Burial," 388), 209 (Roth, "Burial," 368), 210 (Roth, "Burial," 370), 222 (Roth, "Burial," 396; Sp. II, 506, 515), 228 (*Anthropos*, 1911, 177), 232 (Brown, *Journal*, 1913, 169), 300 (Roth, "Burial," 397), 304 (C. III, 79), 312 (H. 467, 468), 334, 337 (Roth, "Burial," 397), 338 (Roth, "Burial," 398), 368 (Strehlow, IV, 26), 389 (*J.A.I.*, xii, 298).

X.—Body or Relics Carried About. 

14 (C.I., 272), 87 (H. 450), 89 (Taplin, 20), 93 (H. 456), 157 (Leichhardt, *Briefe*, 1881, 132), 158 (H. 469), 174, 175, 184 (Roth, "Burial," 397), 198, 200 (Roth, "Burial," 387, 388), 203, 204, 205 (Roth, "Burial," 371), 209 (Roth, "Burial," 368), 210 (Roth, "Burial," 370), 300 (Roth, "Burial," 397), 302 (C. III, 64), 308 (Leichhardt, *Briefe*, 132), 334, 337 (Roth, "Burial," 397), 389 (*J.A.I.*, xiii, 298).

XI.—Eating the Dead.

31, 32, 35, 41, 60, 73, 74, 76, 81, 157 (Leichhardt, *Briefe an seine Angehörigen*, 1881, 132), 209, 223, 308 (Leichhardt, 132), 377, 389 (*J.A.I.*, xiii, 298).

XII.—EARTH BURIAL.

(*a*) *Extended and other positions.* 

3 (C. I, 255), 4, 6, 13, 17, 18, 19, 20 (Sp. II, 241), 69, 70, 71, 72, 73, 74, 76, 81 (H. 448, *Globus*, 79, 56), 82 (H. 450), 97 (H. 458), 100 (H. 458), 111 (H. 462), 121, 124, 125, 126 (H. 452; Cameron, *Journal*, 1888, 363), 130 (H. 466), 132 (H. 451), 136, 137 (Cameron, *Journal*, 1884, 363), 153 (H. 466), 158 (H. 469), 163 (H. 470), 174, 174 (Roth, "Burial," 397), 177 (H. 467), 192 (H. 474), 196 (Roth, "Burial," 394), 198 (Roth, "Burial," 388), 209, 210 (Roth, "Burial," 368, 370), 307 (C. III, 122), 312 (H. 467), 328 (H. 452), 329 (H. 474), 334, 337 (Roth, "Burial," 397).

(*b*) *Doubled up and sitting.* 

1, 2 (Sp. III, 230), 42 (Sp. II, 545), 95 (H. 453), 115 (E. M. Curr, *Recollections of Squatting in Victoria*, 1883, 286), 156 (H. 469), 224 (Roth, "Burial," 395), 232 (Brown, *Journal*, 1913, 169), 261 (C. I, 339), 262 (C. I, 348), 321 (H. 461), 351 (*Folk-Lore*, xiv, 337), 362 (D. W. Carnegie, *Spinifex and Sand*, 1898, 36).

(*c*) *Side chamber.* 

52, 56, 65 (p. 488, Strehlow, IV, 16, 25), 110 (H. 460), 321 (H. 462, Frazer, 81).

XIII.—USE OF HUMAN FAT, HAIR, ETC., IN CONNECTION WITH AN ANIMAL OR WOODEN POINTING APPARATUS. 

108, 130, 131.

XIV.—NEILYERI. 

89, 95, 135.

XV.—ARM-BONE, SKULL, ETC., SMASHED IN FINAL CEREMONY. 

27, 43, 46, 47, 49, 222.

XVI.—HUMAN POINTING BONE COMBINED WITH SPEAR. 

163, 205, 377.

 Line indicates migration of pointing bone.

 Boundary of Northern and Southern languages according to P. W. Schmidt.

Figures indicate tribes according to the list contained in my *Australian Totemism*, pp. 29-32. *Cf. ibid.*, p. 33, for abbreviations.

A CONTRIBUTION TO THE STUDY OF EOLITHS: SOME OBSERVATIONS ON THE NATURAL FORCES AT WORK IN THE PRODUCTION OF FLAKED STONES ON THE CENTRAL AUSTRALIAN TABLE-LANDS.

[With Plates XVIII–XX.]

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and

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During the past four years the authors of this paper have made a series of journeys to the more arid regions of the northern portion of South Australia, these journeys having been made to the table-lands situated both to the east and the west of the Lake Eyre basin. The part of the country over which our investigations have been made extends from Lake Phillipson on the west to Killalpaninna on Cooper's Creek on the east. Over this area, on five separate journeys, very extensive collections have been gathered of the stone implements made by the various native tribes that live, or have lately lived, across this part of South Australia. We have had the advantage of seeing the natives manufacturing these implements, and in many cases we have learned the definite purpose for which they are made and the use to which they are put. The results of this investigation into what may be termed the current stone culture of the aboriginal will be published later by one of us (T.D.C.).

But meanwhile there has arisen a problem. We are now familiar with a definite stone culture typical of the Australian aboriginal, a culture which represents a definite phase, and which seems to have been ready-made, so to speak, at its very first appearance in Australia.

The zenith of this culture we are well acquainted with in some of the finely-worked examples of certain ritualistic implements. Its beginnings are not so easy to determine, for, as we have said, it appears to arise ready-made in a definite cultural phase.

Such a finding is by no means disconcerting to an anthropologist who has regard to the probable history of the Australian aboriginal. There would be nothing at all surprising in the conclusion that the aboriginal had arrived in Australia with his knowledge of a definite cultural phase of stone working, and

that he had elaborated this phase, little enough it is true, during his long sojourn in Australia.

But there is an extremely difficult problem to face if in Australia there be, in fact, a real eolithic culture, as has been claimed,[1] sundered from the typical culture of the black fellow by an unbridged cultural gap.

We are faced with a dilemma; either the Australian aboriginal made at a stride a vast advance from an eolithic phase to a culture which by European standards would be designated as middle-upper palæolithic, or else the products of the eolithic and the palæolithic cultures are not the work of a single evolving section of humanity. Under the circumstances, some have been driven to the lengths of postulating the existence of a previous race of mankind, which tenanted Australia, made eoliths, and then vanished altogether, or made their way by land bridges to Tasmania. This vanishing race left the Australian table-lands littered with their presumed implements, and it is these products which must be adjudicated upon before the current stone culture of the Australian aboriginal can be dealt with intelligently.

In order to attack the problem of the plateau eoliths at its source, we took advantage of a stay at the Stuart Range opal fields (Coober Pedy) in August, 1923, to examine the wide table-lands of the ranges, and make some study of the stones which lie strewn in myriads upon them. There is possibly no European condition of table-lands quite comparable with those of the centre of Australia for the profusion of stones which lie loosely scattered over their surface, or packed together into the wonderful mosaic pavement known as "gibbers."

It is upon these exposed table-lands, and upon them almost exclusively, that the typical Australian "eoliths" are found. As Howchin has said,[2] "These particular implements are not found outside the gibber or table-land country, and they belong to particular types, which, so far as I am aware, have not been manufactured by the aboriginals of Australia within modern times." These "eoliths," then, are things of the table-lands, and it is somewhat relevant to point out that eoliths the world over are wont to be the products of open downs, plateaux and exposed table-lands.

Are these flaked stones of the Australian table-land the work of man, as has been claimed? In the first place, it would seem impossible that human agency could be invoked for the flaking of all these myriads of stones, when we consider that the barren table-lands, during what we may describe as the life cycle of the stones, have been places altogether unattractive for human habitation, or even for human adventure.

[1] Howchin, Professor Walter. "On the occurrence of aboriginal stone implements of unusual type in the table-land regions of Central Australia," *Trans. and Proc. Roy. Soc. South Aust.*, vol. xlv, pp. 206–230, 1921.

[2] *Loc. cit. supra.*

Yet immensity of numbers must not in itself sway us, for a prolonged experience of searching for undoubted human-made implements must impress on anyone the vast numbers in which these things were made. But the vastness of the numbers and the nature of the environment must certainly be considered together. A tribe of aboriginals camped on the sandhills beside a water hole may leave behind them enough finished and unfinished implements to stock a museum; but it seems unlikely that any race of men would have remained long enough on the inhospitable table-lands to have handled the innumerable "eoliths" which cover surfaces measured by hundreds of square miles.

If human agency is not to be invoked in their making, what other agency or agencies can be held to have been responsible for producing their form, and for fashioning their flaked edges? Are there any natural agencies at work? In order to determine this, we have made a careful study of what may be termed the life history of boulders and fragments exposed on the table-lands, and as an outcome of this study, we dissent altogether from Howchin's statement that "in the table-land country there has been, practically, neither local strain or transport."

We can fully confirm everything Howchin has said concerning the disintegration of the boulders of silicated desert sandstone by the natural agencies of alternating intense noon-time heat and nocturnal cold. The whole of the conditions of what may be termed the environmental circumstances of a boulder, or a fragment of a boulder, on the Australian table-lands can only be described as strenuous. Far from there being no local strain or transport, we believe that these factors are powerful and ever-present, and have to be considered very carefully in any question of the natural or human origin of the flaked stones of the table-lands.

In order to ensure some method in the study of natural lithoclasis as we have seen it, it will be best to examine, first, the influences which determine the natural disintegration of exposed boulders, and second, the forces which act upon the flakes produced by this disintegration.

Most obvious of the agencies which determine the disintegration of boulders is that of alternating heat and cold. Every boulder of the table-land shows the effects of alternate contraction and expansion caused by the night frosts and the intense mid-day sun temperature. Some boulders under this influence have disintegrated in a manner which may best be likened to the opening of a rosebud, the petals (represented by the surface flakes) having fallen outwards by exfoliation from the parent mass. (*See* Pl. XVIII, Fig. 1.)

The natural disintegration of these boulders by thermal influences is patent. In many cases flakes already detached can be picked from the surface from which they are separated, but from which they have not yet fallen. In other cases, in which the process has proceeded further, all the constituent elements of an original boulder may be found around a central standing core, which represents the central mass of the original boulder. (*See* Pl. XVIII, Fig. 2.)

Once thermal action has caused a fracture-plane in a boulder, other agencies quickly come into play. First, the adjacent sides of the separated flake and of the parent boulder become altered by the production of a surface incrustation, and this increment to the opposed surfaces assists in the further cleavage of the flake from the boulder.

Again, in the developing clefts lichens often grow, and undoubtedly by their added bulk tend to enlarge the space and further sever the flakes. Another, and a far more important, agency may be seen in every boulder which lies exposed upon the table-lands. Into the cracks caused by the heat foreign substances are intruded, and herein lies one of the most important and interesting features in the study of the natural separating of the flakes and the subsequent history of the flakes when separated.

Practically every chink will be found to contain particles of the red sand so typical of the table-lands. This sand has obviously been blown by the wind, and has come to rest in the chink between the partially separated flake and the parent boulder. Not only sand, but far larger particles, find their way into the widening chink. Coarse grit, and even pebbles, are thus intruded.

These intruded pebbles assist in the final splitting off of the fragment from the boulder, not only by the interposition of their mass, but by the differential action caused by their alternate expansion and contraction under the influence of alternate heat and cold.

Apart altogether from thermal agencies and the interposition of particles, there are also mechanical factors involved in the disintegration of boulders. The bed that underlies the boulders easily yields to the weather: "Crab-hole" country and "Biscay" country are familiar features of the table-lands.[1] In this way very definite movements of the boulder and of its disintegrating portions are produced: and these movements need careful consideration in the question of the development of flakes and the subsequent history of the flakes. Again, factors of gravity acting upon the fragments into which a boulder is split up must not be lost sight of. Some fragments will fall with considerable momentum, some will quietly sink down, and maybe roll over, but all will be subject to its laws.

Under the action of all these forces a large table-land boulder becomes split up into a number of parts, and these parts may be widely scattered when the whole mass disintegrates; even when a boulder is split with only two main portions, the two moieties may be widely sundered, and at times one may be found completely reversed from its original position. (*See* Pl. XVIII, Fig. 3.) When it is broken up into a large number of fragments, these fragments may be found strewn over a very wide area.

[1] These terms are applied to country in which small or large depressions are caused by the sinking of the surface over roughly circular areas.

So much for the factors that we have seen at work in the natural disintegration of boulders on the central Australian table-lands; it remains now to study the flake, which is the product of this disintegration.

A flake, having once been separated from the parent boulder, may be said to lead an independent existence, and during this independent existence it is subjected to further natural physical processes. (*See* Pl. XVIII, Figs. 4A, 4B, 4C.)

It continues to be subject to thermal influences. Natural flakes frequently show a surface-pitting which is undoubtedly due to thermal influence acting upon the boulder before the flake was separated, and which can, as a rule, be readily distinguished from any form of human chipping. But when such thermal pitting involves, or is associated with, the edge of the flake, the distinction is not always so readily made. Secondly, the flakes may become chipped by mechanical agencies as opposed to being pitted by thermal influence. In the first place, the original fall of the flake from its parent boulder may produce some chipping by contact with other stones met with in its fall, and such chipping is of a definite percussive type.

We have already seen that the conditions obtaining on the open table-lands are such that pebbles of quite a considerable size are driven into the rift between a separating flake and its parent boulder. Undoubtedly these intrusive pebbles are wind-driven. Sweeping across these vast open spaces, the wind is able to drive sand, grit, and pebbles into any chink which a large boulder affords. These moving masses also act upon the separated flakes, and during their lifetime spent upon the open table-lands they may be subjected to a series of percussions from wind-driven pebbles. Not only this, but by its relation to the bed upon which it rests, a flake may have been placed in such a position that its edge is freely exposed to the action of these moving particles, and in this way edge chipping by the percussion of wind-driven pebbles is readily effected. Again, the separated flakes are strewn upon the table-lands in vast numbers. In the typical "gibber" country the surface stones fit together in such a wonderful way that they resemble a mosaic pavement. As a consequence of the crowded nature of the surface stone community, the movements of a particular fragment, or of adjacent fragments, or of a boulder itself, may produce stresses which cause chipping of the edges which is akin to pressure flaking.

We have, therefore, come to realize that a flake, produced by the natural agencies which we have seen at work, may show features many of which are, at first sight, singularly like those which we have always been accustomed to associate with purposive human action. In the first place, if the material of which the boulder is constituted has such a physical structure as to fracture with the production of a conchoidal surface, this conchoidal surface will be present on the flake if it be split off from the boulder by purely natural agencies. Of this there is no doubt whatever. Flakes may be picked from the surface of boulders by the fingers, and the underside of these flakes shows a well-marked conchoidal curvature. These naturally-formed curved surfaces differ from the familiar bulb of percussion in (1) that they

have no relation to a striking platform; (2) that they show no scar; and (3) that there is no development of ripple marks which are usually so conspicuous on the true percussive bulb. They are perfectly smooth curved surfaces, situated somewhere on the detached surface of the flake.

Secondly, chipping may mark the surfaces and the edges of the flake, and these chippings may be either thermal—when no confusion with human work is likely to arise; or percussive—when the simulation of human work may be very close indeed. These natural percussive chippings may, as a rule, be distinguished from human workmanship by a judicious consideration of the following features:—(1) The natural percussive chipping lacks the regularity which is commonly displayed on implements made by men. (2) It involves both surfaces of the edge, even if both surfaces are involved to an unequal degree. In Australia this is an important point, since all the human-worked stone implements with which we are acquainted (with the exception of certain objects from the far north-western portion of the continent) are normally chipped upon one side only. (3) A most important feature is that obviously a long time interval may separate the period of infliction of even adjacent chippings. The surface left by the removal of one flake may differ in patination very markedly from the surface left behind by the removal of a flake no more than a millimetre or so away. This seems to show that the flakes were not all removed at the same time, that they were removed at variable and often considerable intervals; and we may say that natural percussive edge chippings may show evidence that it was done at irregular intervals over a long period of time, whereas human percussive edge chipping shows evidence that it was done at a sitting (*see* Pl. XIX, Fig. 1). (4) A fragment which has remained for a long period with one edge exposed, while the rest of the fragment was buried beneath the surface, may show chipping of the exposed edge, whilst the buried edge may remain unchipped. An interesting example of this condition is shown in Pl. XIX, Fig. 2. This specimen was standing on edge like a grave-stone, and demonstrated, as did innumerable other examples, the difference between the portions exposed to the strenuous conditions prevailing above ground and those protected below.

From our study of the local conditions prevailing on the central Australian table-lands, we have therefore come to the conclusion that in the development of those large irregular chipped stones, which have been designated as eoliths and have been regarded as being of human origin, there is no need to invoke any agency other than the natural physical forces which are in powerful operation in their environment. We are convinced that there are potent causes which are capable of producing all their features in the absence of any sort of human intervention. But this is not to assert that human agency has been absent in the fashioning of certain flakes on the table-lands. There are definite evidences of the work of man, and we believe that these evidences are unmistakably manifested in certain of the table-land flakes. Nevertheless, we think these human-made flakes show features by which they may



FIG. 1.—A TABLE-LAND BOULDER UNDERGOING NATURAL DISINTEGRATION. SURFACE FLAKES, MARKED BY CONCHOIDAL FRACTURE, AS SEEN IN THE PROCESS OF BEING SPLIT OFF FROM THE PRESENT BOULDER.



FIG. 2.—THE NATURAL DISINTEGRATION OF A TABLE-LAND BOULDER, SHOWING THE WIDE SCATTERING OF THE COMPONENT PARTS.



FIG. 3.—TWO PORTIONS OF A NATURALLY DISINTEGRATED BOULDER WHICH, THOUGH SEPARATED BY NO MORE THAN 10 CM., SHOW A COMPLETE REVERSAL IN VERTICAL POSITION OF THE FRAGMENT ON THE LEFT.



FIG. 4A.—A SMALL FRAGMENT (11·5 CM. LONG) SHOWING NATURAL FRACTURE BY INSOLATION. AS FOUND.



FIG. 4B.—AS FIG. 4A, BUT THE FRAGMENTS SEPARATED FROM EACH OTHER.



FIG. 4C.—AS FIG. 4B, BUT THE FRAGMENTS FURTHER SEPARATED.

FIG. 3.—A TYPICAL TABLE-LAND FLAKE, SHOWING THE CHARACTERISTIC SIZE AND CHIPPING.

FIG. 2.—A SEPARATED FLAKE WHICH WAS EMBEDDED IN THE EARTH UP TO THE BLACK LINE, SHOWING THE CHIPPING OF THE EXPOSED EDGE AND THE ABSENCE OF CHIPPING UPON THE PROTECTED LOWER PORTION.

FIG. 1.—A TABLE-LAND FLAKE SHOWING MARKED DIFFERENCE IN THE FRESHNESS OF THE SURFACES FROM WHICH INDIVIDUAL CHIPS HAVE BEEN REMOVED.

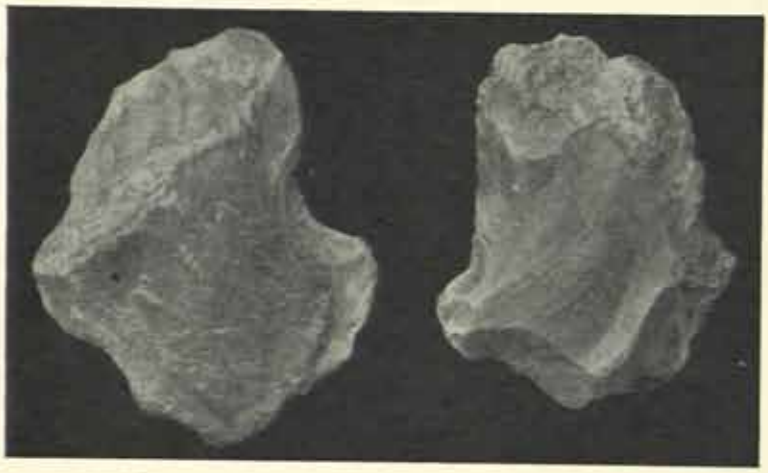


FIG. 1.

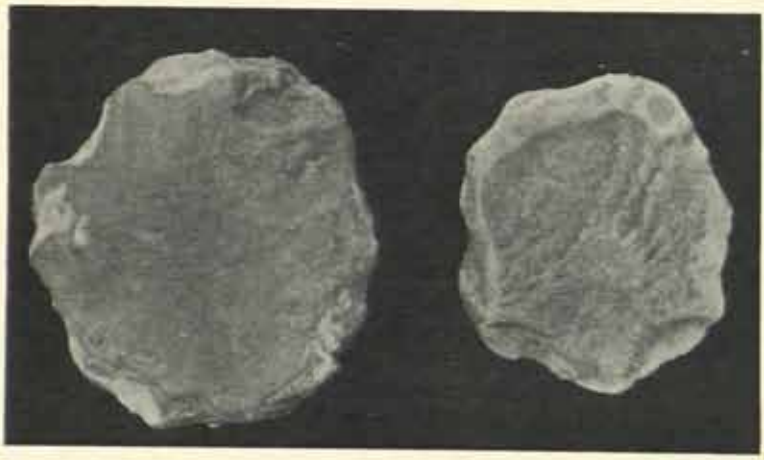


FIG. 2.

TYPICAL NATURALLY-PRODUCED TABLE-LAND STONES COMPARED WITH EUROPEAN EOLITHS FROM THE COLLECTION OF MR. BENJAMIN HARRISON. IN BOTH CASES THE HARRISONIAN EOLITH IS ON THE LEFT OF THE FIGURE.

be readily distinguished from the so-called "eoliths." We have to remember that the table-lands have always been a vast storehouse of material; there is serviceable stone enough and to spare on the table-lands, and they have evidently been the quarries of the aboriginal over a very long period of time. That aboriginals went to the table-lands and with lithoclastic art struck off flakes is beyond doubt. But after a sufficient apprenticeship the recognition of these evidences of human intervention is not difficult. Over a very wide area one may make intensive search and find the large "eoliths" by the cartload, and then come upon a restricted patch where comparatively small flakes are strewn over a limited area; each of these flakes will have a very definite percussive bulb, with a striking platform and ripple marks. Perhaps a couple of dozen of such flakes will be present in an area of a few square feet, and another such patch may not occur within a very wide radius. These flakes have every evidence of being of human origin, and we regard them as the handiwork of aboriginals who have visited the table-lands in order to obtain material for their stone implements. But these small areas in which flakes, with definite percussive bulbs, are to be found, are as coral islands in an ocean compared with the areas over which the large irregular "eoliths" are distributed. That a definite human stone culture further advanced than the mere rough flake is absent on the table-lands is a matter of little moment, and it certainly is not an index of the lithoclastic culture of the race responsible for making the flakes. We know quite well, from numerous other instances, that the aboriginal was in the habit of visiting a region where suitable stone abounded simply for the purpose of obtaining the stone. The material he obtained at the source he carried away, and often over great distances, to elaborate at his leisure into definite implements. We know definitely, from the existing natives and from the evidences of our own collections, that stone obtained as far away as Lake Phillipson was worked into specialized implements at Mount Eba, some sixty miles distant. The rough flakes, marked with a definite striking platform, a definite bulb of percussion, and ripple marks, which we find localized to small patches in the table-lands, we therefore regard as evidences of the visits of aboriginals to the table-lands in order to obtain materials for elaboration in their stone culture. And these, we believe, are things altogether apart from the large, rough, chipped stones which have been designated as eoliths and which lie scattered over the table-lands in countless millions. The extraordinary numbers in which undoubted human-made flakes and implements exist in certain favourable sites in Australia have made some people incredulous of their human origin: the boundless profusion of "eoliths" over vast areas of altogether unfavourable sites may well make an enthusiast doubtful of their human origin, even when only this aspect of the case is under consideration.

These "eoliths," as Howchin has observed, differ widely from the implements which the aborigines are known to make, not only in their roughness and in the fact that both surfaces are chipped, but in their prevalent large size. The average eolith so greatly exceeds the average human-chipped flake in size that this alone must

be considered an important factor. The large, roughly-chipped stones of the table-lands of Australia, such as are illustrated here in Pl. XIX, Fig. 3, and in Howchin's paper at Plates XII–XXI, we consider as things for the making of which no human agency need be invoked, since we have seen natural forces at work which are quite capable of fashioning them. We also consider that a human origin for the countless millions of them scattered over hundreds of square miles of table-land country is incredible. Our observations are limited to these Australian products, and we have not at our command a sufficient series of European eoliths to initiate a satisfactory comparison. (*See* Pl. XX, Figs. 1 and 2.) We would, however, suggest that in examining eoliths from any locality due regard should be paid to the following points :—(1) Are all the surfaces left bare by the removal of flakes of the same nature as regards patination or other evidences of antiquity or freshness ? (2) Are they all so similar in character as to indicate that they were the product of a purposive agency acting during a very short time interval ? Natural agencies may remove a series of flakes from a stone at the intervals of, say, half a century. Human agency will remove them in, say, less than ten minutes. We therefore hope that some re-examination will be made of accepted European eoliths, in order that a verdict of " made at a sitting " or the reverse may be given. If there is good evidence that the flakes were not all removed at one time, there is a very strong presumption that they were not removed by human agency. No human being or pre-human being carried with him a stone from which he removed flakes at the intervals of several years, much less at the intervals of several centuries.

THE ORDERED ARRANGEMENT OF STONES PRESENT IN CERTAIN PARTS OF AUSTRALIA.

[With Plate XXI.]

By Frederic Wood Jones, *Elder Professor of Anatomy in the University of Adelaide and Hon. Curator of Anthropology in the South Australian Museum.*

Permanent memorials of the culture of Australian aboriginals appear to be rare. When we have enumerated the rather limited number of painted and incised rocks, and considered the vast store of stone implements and ceremonial objects which are scattered all over Australia, we have exhausted most of the evidence of aboriginal enterprise which may be regarded as in any way permanent.

But in addition to these are other permanent works of the aboriginals, which, though designed at times on almost a grand scale, have received less attention than they deserve. Short of megalithic culture there are many manifestations of a stone cult which, though comparatively trivial in their display, are yet of the greatest interest.

The question of stone circles in Australia has been much debated in the past. In Philip Chauncy's Appendix to Brough Smith's *Aborigines of Victoria* (1878, p. 234) the following occurs :—" In one of Chambers' Tracts on the Monuments of Unrecorded Ages it is stated that 'Stone circles' are numerous in Victoria—that they are from ten to one hundred feet in diameter, and that sometimes there is an inner circle ; also, that the aborigines have no traditions regarding them ; that when asked about them they invariably deny knowledge of their origin. I can safely affirm that these statements are quite incorrect—there are no such circles, and never were. I am convinced that no structures of a monumental character were ever erected by any of the aborigines of Australia."

Mr. Chauncy was District Surveyor of Ballarat, and presumably had a wide knowledge of that part of Victoria. In thus dogmatically ruling out " stone circles " he evidently had in mind megalithic circles, for in the same article he himself calls attention to two very interesting cases in which stones have been quite definitely arranged in radiating, maze, or circular formations.

Concerning the first, he says :—" On a little basalt islet in Lake Wongan, about seven miles north-east from Streatham, I observed an ancient aboriginal work consisting of extensive rows of large stones, forming passages up and down, like a maze, at the foot of a little hill. A semicircular walk, 10 feet wide, has been made by clearing and smoothing the rough rocky surface up the hill and down again

leading into the maze. This work was possibly executed for the purpose of carrying on some mystic rites, or probably only for the amusement of running between the rows of stones and up the hill and down again."

Of the second case he records :—" Mr. A. C. Allen, Inspector General of Surveys, has informed me that during a recent journey in the Tattiara country near the South Australian border, he noticed a number of stone walls 2 or 3 feet high, which had been constructed by natives, radiating from a little cave in the ground and forming irregular passages. I can only conjecture that these and other similar works have been used by the aborigines, in times past, for purposes of incantation."

The name Tattiara country is applied to the south-western district of Victoria, of which Bordertown may be taken as a centre. The stone formations which are described by Mr. Allen I have not seen, nor can I obtain any other account of them. I am therefore unable to state if they are in existence to-day.

Quite recently, however, I have had information about a very similar construction in another part of the country. At Durham Downs station, which is some 350 miles north-east of Farina and 400 from north of Broken Hill, is a very remarkable arrangement of stones laid down as pathways. The existence of some place which was held in special superstitious regard by the station blacks has been for long known to the manager, Mr. McCullagh, but it is only within the present year that the actual spot has been localized, and its finding was the outcome of pure accident. The place is within ten miles or so of the station homestead. In nearly all the details this Durham Downs structure appears very similar to the stone work described by Mr. Allen. Owing to the kindness of Mrs. McCullagh I have been permitted to see photographs of the site, and to have a first-hand description of the stonework.

As in the Tattiara example the low stone walls radiate from a cave, and here the mouth of the cave (which has partly fallen in, and has not been entered by the station owners) is described as being greasy or shiny, as though something had rubbed against its sides in coming and going. Judging by the photographs, the stones that mark the edges of the paths are about knee high, though here and there a considerably higher one is conspicuous. The paths themselves appear to be arranged in a most intricate maze-like fashion, though there are evidently some which proceed more or less directly in a radiating manner from the mouth of the cave. The present station blacks, who number about thirty, are said to have a tradition that these paths were used by people who lived in the district before the time of their old people. These folk, they say, had blue eyes, and they lived in the cave by day, emerging in the evening to dance among the stones. The present blacks evidently hold the spot either in some dread or in some special esteem, and would not make its whereabouts known to the white people. I have had neither time nor opportunity to make the journey to Durham Downs to inspect this very interesting place ; but it is much to be hoped that it will be visited and recorded by some Australian ethnologist, and that it will be preserved intact as a permanent monument.

A rather different form of what is evidently the same basal type of stone structure is described by A. W. Howitt (Brough Smith, App. D, *Notes on the Aboriginals of Cooper's Creek*). According to Howitt this type of stonework was common, for he says "in many places where the ground was bare—as on extensive clay flats—I have seen circles and circular figures formed with stones of various sizes, generally as large as a 2-lb. loaf. They are laid on the ground, and were explained by the blacks to me as being play. I think they require more explanation." No individual claypan is instanced by Howitt, and it is difficult to be certain as to the exact district of the Cooper's Creek area he is describing. In May, 1920, I did the journey from Hergott Springs (Marree) to Cooper's Creek, but did not notice any artificially ordered arrangement of stones anywhere along that portion of the great Queensland cattle route known as the Birdsville track. In 1921, and again in 1922, I visited the gigantic claypans to the south and west of Lake Eyre, known as Bamboo Swamp and the Devil's Playground. Bamboo Swamp is too much covered with harsh cane grass to permit an examination of its floor; but the Devil's Playground is strewn with stones ranging up to large masses as big as an ordinary suit-case. The native account has it that these stones were tossed about by a former race in some sort of play; but if they were at any time arranged in definite order they must have been disturbed since, for to-day they appear to be merely scattered at haphazard. It must be remembered that claypans fill during rains, and large pans, such as these, hold a considerable sheet of water that remains for many months even in the climate of the centre. Again the trampling of cattle as they come to the claypans to water might easily disturb the loosely piled stones.

Quite recently (May, 1923) I have had the good fortune to visit another claypan, the native name of which is Gungra. This pan lies about 10 miles north-west of McDouall's Peak on the track to Lake Phillipson, about 540 miles in a straight line north-west of Adelaide (Railway Map, 1921). This claypan is not marked or named on any map or Pastoral Plan that I have had access to. Gungra is not a large claypan, for it measures some 800 yards long and some 600 yards wide; it is very shallow, and, save for one hole in which a mulga bush grows, it probably does not retain water long, even on those rare occasions when it is filled. The astonishing thing about this claypan is that of the millions of stones which strew its even surface the vast majority have obviously been placed in their present position by human hands. The complexity of the arrangement is so great that no concrete notion can be had of the general plan; but the main lines of arranged stones, and the cairns are obvious at a glance. The main complexity of the design is towards the south-east side of the pan, and from this centre long lines of stones, in straight or waved lines, radiate right across the claypan and are lost in the sandhills beyond. (*See* Plate XXI.) Some lines of stones are several hundred yards in length, and the stones themselves are so carefully selected and placed in position as to make almost even and nearly perfectly straight tracks, like rows of bricks placed along

the border of a path. I could detect no general geographic orientation in the pattern. One rather obvious line runs nearly due east and west, but so many others run at varying angles to it that this is probably only a coincidence. One line, however, which is lost on the sand on the north-west side of the claypan appears to point to another claypan about a mile further on. Some of the lines are evenly waved, being composed of a series of crescents, and at one time the junction of the crescents was marked with little heaps of stones which have now fallen down. As the central portion of the pattern is approached the arrangement of the lines becomes bewildering; some are looped, running from the centre and then back again; some appear to unite the various rays as do the strands in a spider's web; and some run out to a point and then sharply return. The central portion of the maze-like area has been marked by a series of cairns about 4 feet high and solidly compacted—very much like the cairns erected by the surveyors on prominent spots. Of these cairns only four are now standing, but the sites of many more can be detected by the mass of disordered stones caused by their collapse. The main features of the claypan and the cairns, and linear arrangement of the stones are shown in the two illustrations, but nothing short of a prolonged survey or an aerial photograph could give any connected idea of the plan of the whole curious structure.

When in May, 1923, I travelled across the claypan and photographed it, I was accompanied by an intelligent aboriginal—a pure-blood member of the Kukata tribe—in whose country this claypan is. He was very communicative concerning the tracks and habits of the native animals of which I was in search, and I hoped that he would know something of the history of the claypan. But he said he knew nothing of it but what the old blacks had told—that it was made by people who lived before the blacks, whose name was "Meeta," and concerning whom he knew nothing. When asked as to why the "Meeta" should make the stone lines and the mounds, he replied he did not know, but supposed it was for "play." He told me, however, that his mother, the oldest living Kukata, might know more than he.

Soon after passing over the sandhills north of Gungra claypan another and very similar claypan is met; this, on the Pastoral Plans (Sheet No. 6), is named "Teatree Well." Here there are also stones, but all are strewn about in confusion. A rather startling object in this far-away and deserted portion of the country is a well-built engine-house and cottage, composed of the same type of stone. A well, long since deserted, has been sunk, and cottage and engine-house constructed in this very remote claypan, and their presence seems strangely incongruous in this out-of-the-way place.

On returning to Mount Eba (60 miles north and east of Kingoonya, which is 210 miles west of Port Augusta on the railway to Perth), I questioned the mother of my aboriginal companion (a very aged woman and quite blind); and she again

confirmed the story that the stones were not put there by the blacks, but by people before them. But the reason for these people constructing the whole thing, she said, was the marking of the track of a large animal which they had seen. Now from these stories it was easy to draw two rather attractive conclusions: (1) that the aboriginals had traditions of a race which inhabited the country before them, (ii) that they had traditions of a very large animal—so large and unusual that a very considerable outlay of work on marking its tracks was undertaken. Both these very alluring deductions are almost certainly false.

In August, 1923, I revisited the district on a journey to Stuart Ranges, and fell in, and camped, with a white man about forty-seven years of age, who has lived all his life with the aboriginals. Although he can neither read nor write, he is a man of good intelligence, and, although he passes all his life in "wurlies" surrounded by aboriginal women, children, dogs, and all the dirt and disorder of the usual black's camp, he appeared to be as well contented with his life as any man I have ever met. He knew the whole story of Gungra claypan. The story as he had it from the aboriginals, was as follows: A great many years ago, a series of bad seasons had reduced the then very numerous Kukata to starvation, and the old men of the tribe met in a cave which consisted of a hole in a big rock, which stood in the claypan now named "Teatree" claypan. This cave was, so to speak, the tribal council chamber. At this council it was agreed that the tribe was too numerous for the country to support, and in order that fewer children should be born, the operation of subincision was decided on. This being determined, a great corroboree of the tribe was held in Gungra claypan, and the stones were set up for the laying out of the corroboree ground. It was at Gungra that the subincision corroborees were always held: until, probably about fifty years ago, some white men came into the country and put a well down in "Teatree" claypan. [Before the present increase in the number of dingoes, due to the increase in the number of rabbits, this country was "sheep country," and a generation previous to the present generation of cattle-men, occupied this part of the Centre.] In order to build a house and make well-heads, &c., these white men, though implored not to do so by the blacks, blew up the rock cave with dynamite to provide building stone. My informant added that all the white men were "pointed" by the blacks, and went south and died. However this may be, the place was abandoned by the white settlers. After the destruction of the cave in the rock, the place was also abandoned by the blacks, and by them was regarded with particular dread and dislike. The first knowledge my informant had of the story was when he was a very young man, and was going "dogging" with two young native girls up to Lake Phillipson. The Gungra claypan lies in the track, and over the claypan he took the girls. For this act he got into trouble with the men, since the lines of stones laid in order are indications that no women may pass, and he had offended in taking these girls across the line. Such lines are always laid down to

prevent women coming near the corroboree grounds where subincision corroborees are held.

Having learned this account, which I have every reason to believe is the correct one, I asked if all the blacks knew this, and I was assured that they did, and that none knew better than the old lady and her son whom I had questioned previously. I therefore sought out the son again to ask if he had learned any more about the stones in which I was interested, but he said he knew nothing whatever about them. I may add that the word "Meeta" which was given me as the name of the ancient race which constructed the stone works, is a Kukata word which is usually employed to signify the "frilled" or "Jew" lizard (*Amphibolurus*); this translation I give on the authority of the white man who has thrown in his lot with the Kukata.

Several points of interest are raised in this account of the origin of the stone work on Gungra claypan—the old corroboree ground for the subincision rites of the Kukata—but these hardly call for discussion here. It might, however, be pointed out how similar are the accounts given by aboriginals for the origin of these stone constructions, when questioned by interested white strangers. How often the idea of "play" is brought forward, and how often a previous race is given credit for the work. And yet I am convinced that there is not a word of truth in their accounts; for I have much other evidence to show that they will deny all knowledge of ritualistic objects, or attribute a false interpretation to them, or ascribe their making to some other people, when they are questioned, however judiciously, concerning them.



FIG. 1.—GUNGRA CLAYPAN. VIEW FROM THE NORTH-WEST, SHOWING THE LINE OF STONES WHICH STRETCHES TOWARDS TEATREE CLAYPAN. THE FOUR REMAINING CAIRNS ARE SEEN IN THE DISTANCE.



FIG. 2.—GUNGRA CLAYPAN. THE SOUTH-EAST END OF THE CLAYPAN, SHOWING THE TWO MOST SOUTHERLY CAIRNS AND SOME OF THE MORE INTRICATE STONE LINES.

THE AFRICAN THROWING KNIFE.

By Ernest S. Thomas.

This note embodies the results of an attempt to collect all available examples of the throwing knife and correlate them as far as possible. The drawings are taken from the thirty sources given at the end of the paper (p. 143), which includes two museums (the British Museum and the Museum of the Royal Geographical Society, Cairo) where the drawings were made direct from the objects.

The arrangement of the knives in the chart (pp. 136–7) primarily brings all varieties of the same type together. It also suggests possible lines of evolution of one type from another through the "F"-shaped weapon to the blade forms which are the most efficient throwing knives.

As far as possible the correlation of types widely separated geographically has been avoided—the study of types apart from provenance alone might suggest other and more plausible links of development—but the student of the evolution of the throwing knife is seriously hampered by the vague indications of provenance of so many of the examples. Congo, Upper Congo, Ubangi, French Ubangi, Welle, Nubia—earlier explorers have in many cases given no other indication of provenance than vague designations such as these.

Very little is known as to the rarity or otherwise of particular types, and there is nothing published to show that the old men in districts where the knife was or is used, were ever questioned on the subject. In fact, the ethnological importance of the object does not seem to have been realized except by students like Dr. Maes, of the Belgian Congo Museum (18, 18a), who has written interesting articles on the specimens in his collection, to which frequent reference will be found.

To attempt to display the full evolution of the weapon diagrammatically, one would obviously have to work in more than one dimension. In the chart (pp. 136–7) the actual position of a type in its line in sequence is not always significant, as it has not been thought expedient to group sub-types in separate lines, and the only utility really claimed for the chart is that it comprises all the types resulting from a painstaking search[1] in all likely available publications.

The "F"-shaped weapon should perhaps rather be considered as an iron form of throwing stick than a knife, and it might be contended that there is no connection between it and the throwing knife proper, which consists of a stem (terminating

[1] In the course of which I received the most kind and valuable help of Mr. T. A. Joyce, Deputy-Keeper in the Department of Ceramics and Ethnography, British Museum, and Mr. Braunholtz, Assistant in the Department.

in a handle) or body from which spring a peak, crest and wing, to employ ornithological terminology. Schweinfurth (19) relates that the Azande, the tribe which, with other kindred tribes in the Welle area, have developed a striking variety of forms of the trombash, as it is generically, though wrongly, named,[1] used the weapon in war to hurl with a circular motion at the legs of the enemy, and that it could cut off a leg at 20 yards. Dr. Maes (18) has experimented with them, and finds that at 15 metres the more efficient forms, namely those, as one would expect, in which the centre of gravity lies in the middle of the stem, would pierce a deal board 15 mm. thick. Its range is stated to be 100 metres, but of accuracy 40 or 50 metres.

The "F"-shaped weapon is peculiar to races in the Shari-Chad region, and is or was found sparsely in Nubia, and used by some tribes on the White Nile, but not at all apparently by the Abyssinians, Galla, or Somali.

This weapon, as will be seen below, is apparently of Libyan origin, and if the evolution of the winged typed from the "F" type can be established, it will be an addition to the evidence that the tribes, or many of them, that use it, like the Azande, are of Libyan rather than Hamitic (Somali-Galla-proto-Egyptian) stock. On the other hand, the evidence existing that the Azande stock came in from the north-west (Shari *via* Bahr el Ghazal ?) suggests that they brought the prototype of the weapon with them and developed the winged form independently. Only floriated and debased types of the winged weapon occur in regions where the "F" form is commonest, whereas at least one "F"-formed trombash appears to be Zande, and that, from its ornamentation and handle, a ceremonial weapon, to become which is the fate of obsolete weapons in Africa as well as Europe. But decoration is no proof of the ceremonial use of a weapon,[2] and the ancient forms can only be discovered by collecting and sifting tradition, and by research in old village sites and cemeteries in places where arms are buried with the dead.

The trombash was used (for it is fast dying out as a weapon) by the peoples of a limited area in central and north-west central Africa : the "F" form (as stated above) mostly by races in the Shari-Chad region, Tibu (Tibesti), Bagirmi, Adamawa, etc., and the winged forms by the Azande and Ubangi Welle peoples, and in certain regions of the Congo, the Kameruns, and the Gabun. (These areas are indicated on the accompanying map p. 140.)

One of the "carriers" of the throwing knife culture has apparently been the people known variously as the Fan, Fang, Pahwin, Pangwi, who appear to have emigrated under pressure from the Eastern Welle district (Mangbettu area, according to some authorities) in a north-westerly direction, until they were driven southwards

[1] Trombash, kulbeda, pinga, are all names under which the throwing knife is known. Pinga is the Zande name. Trombash is really a wooden weapon. For the purposes of this article the same word is used in the singular and plural.

[2] The drawings studied are sometimes purely in outline and do not indicate decorative engraving.

and westwards. They are the chief users of a third type of throwing knife evidently representing a bird's head, as the eye and beak are often clearly indicated, the former by a triangular perforation. Some interesting though unwieldy and inefficient forms of throwing knife appear to have been evolved through the enlargement of the eye and modification of the resulting outline.

This case of the Fan, who appear to have started their long trek towards the Atlantic early in the nineteenth century, is a good example of the difficult and interesting problems arising in the study of the throwing knife. If the Fans were originally a trombash-using race it is strange that so few types are extant among them. The bird-headed instrument is a characteristic Fan weapon. It may be the prototype of some of the winged trombash, but the knife itself has not been noted apparently east of the Ubangi, except among the Bwaka on the east bank of that river.

This and kindred problems are touched upon in the notes below dealing with the chart.

GROUP A.

A1.—A weapon is shown in the hands of cattle-driving Libyans on an ancient Roman-Libyan Mosaic at Zliten (Tripolitanea) which is of this form as far as can be made out from poor half-tone plates.

A2 is from an ancient Libyan temple wall at Meroe. As depicted it is not, possibly, a throwing knife, the stick being man-high. But the weapon may be ceremonial—no other example was found in Lepsius, *Denkmäler*—and a survival of the trombash of the northern ancestors of the Sudan Libyans. A3 to 14 (inclusive) all appear to be peculiar to the peoples of Libyan stock in the Shari-Chad region, between Lake Chad and the sources of its rivers.

AX_1.[1]—This is an instrument which plays a part in the Hausa Bori ceremonies in Tunis. The trombash is evidently its prototype.

GROUP B.

These three examples, evidently allied to forms classed under D, are taken separately on the distinction of their sloping spurs.

GROUP C.

C1.—This weapon is shown in the hands of the Libyans portrayed in a tomb wall-sculpture at Tel el Amarna (*c.* 1300 B.C.) and its resemblance to the trombash is noted by Bates (*Eastern Libyans*).

The resemblance is significant and important ethnologically. I have not met with any other reference to it in ethnographical works.

[1] The examples marked X in different groups I have regarded as "sports," or as devoid of further development: Dr. Maes' "aberrant types."

C2 to 5 (inclusive) are all apparently Sudan forms which, with F8, 9, and 10, must have come across from the Shari area.[1] In default of evidence to the contrary, it need not be supposed that they pre-date the Moslem era, and they may probably be attributed to the influence of Moslem pilgrims to Mecca. Pilgrims from Senegambia have in fairly recent years formed settlements in Darfur and Kassala. The wavy top of these, like the curved examples with flattened-out ends, F8, 9, and 10, seem to be peculiar to the Northern Sudan, but there is no difficulty in supposing that each of these groups, in the Sudan, had a single prototype of one of the many Shari forms shown under groups D and F, and that each had a single hearth from which it spread.

GROUP D.

D1 is a repetition of C1.

D2, unless the somewhat uncertain G3 is of the same provenance, is the only trombash of "F" form attributed to the Azande.

D4 to 6.—These are bent forms clearly analogous to A4, 5.

D7 and 8.—These curious angled trombash, together with DX_2 and the three shown in group E, are, with the exception of DX_1, apparently peculiar to the Teda (Tibesti). AX_2, composed of straight elements only, should perhaps also be included.

D9 is an interesting form, with a crescent top clearly allied to D7, 8, and a drooping spur like B and E. The crescent may well have developed out of such forms as A5, A9, D6, and, its provenance being unknown, it might confidently be assigned to the Shari region, but for the notched excrescence on the spur which is found in only three other examples, C4, F9, C5; the former two certainly, and the last probably, from the White Nile region.

D10 is also an important type with points of resemblance to D9, of which it might be described as a hypertrophied form, due to clumsy handicraft. Its provenance is Krej, an additional reason for assigning a Sudan provenance to D9. It is ornamented with engraved lines and is perhaps a ceremonial weapon.

GROUP F.

F1.—This weapon is shown in the hands of Libyans in a tomb sculpture at Tel el Amarna of about 1400 B.C. (*vide* A1). F1 heads this group as a very ancient form with the upper part bent.

F2 to 7 are all allied forms from the Shari-Chad region.

F8 to 10 have already been referred to as Sudan trombash. It will be noticed that although the arched type of "F"-shaped trombash with expanded tip is peculiar apparently to the Sudan, the expanded tip occurs in D3, a Shari example.

[1] I am informed by the Director of the Khartoum Museum, who kindly had enquiries made, that the throwing knife is not known to the Dinkas south of Lake No, Bahr el Ghazal: an indication probably that it reached the Northern Nilotic peoples from the Shari-Chad regions.

FX_1.—The drooping spur of this Bornu example is the only point of interest apart from its very rough shape.

FX_2.—This curious form from the Chad area appears to be a development of a type like F8 to 10.

$FX_{3,4}$ are degenerate forms of FX_2; the spur being rudimentary in the former, and absent in the latter.

GROUP G.

G2 is a Shari form; a curve-angled version of the Zande D2.

G3 is in the Geographical Society's Museum in Cairo, where all the throwing knives are stated to be Zande. Its engraved surface and handle of white leather, instead of the netted string grip of most of the trombash, points to its being a ceremonial object. Under D2 the rarity of the "F"-form trombash was remarked upon; a curious fact if the Dinka, Shilluk, Bertat and Krej took the weapon from the Azande. The most feasible explanation is that the trombash of "F" form reached the Sudan *via* the Ubangi-Shari-Chad region and the Bahr el Ghazal. Johnston (16) suggests the Shari and Bahr el Ghazal as the two centres where the trombash (presumably the two types) developed. But the absence of the winged form in the Bahr el Ghazal is striking if this is the case.

GROUP H.

This group is chiefly composed of forms which are referred to the Sanga peoples. Several of them, as the index shows, are Shari types and it seems evident that it has reached the Sanga from peoples in the region of the Chad rivers' sources rather than the opposite.

H4 to 7.—The curl on the spur of these examples seems to be a link with J10. It is seen again in the Sanga knives K8, 9.

H4 is referred to the Upper Congo; probably, by analogy, Stanley Falls.

HX_2 is almost identical with a Sanga form and has been found at Stanley Falls, a far cry from the Sanga. So that it is not unwarrantable to imagine a similar origin for the Sanga type H4.

$HX_{1,2}$.—The perforation in the head of these warrants their being classed with H5, 6.

GROUP I.

I2 (H3 reversed) and I3 are Upper Congo forms, so that their correlation with Bornu (I4) and Nubian (I5) forms is not really legitimate. I6, however, is a North Congo form, and the similarity of its shape in the upper part to I3 is noticeable. It is more likely that I6 is derived from a form like I5, in which the spur is a separate piece attached, than that the latter should be an imitation of the former. In I7 the added projection in the centre increases its efficiency as a weapon, and I8 is a further refinement.

GROUP J.

This group contains the bird-headed weapons to which reference has been made above. The whole series except J1 and 2 (which are to be considered presently), and JX_1, is referable to the Fan or is found in the track of their migration. JX_1 may well have reached the Upper Congo with the I forms whose presence at Stanley Falls was noted above.

J1 and 2 are Bagirmi and Mundong respectively, of the central Shari region.

They are wooden ceremonial objects. A bent wooden club with a slanting head broader than that of J2, edged with indentations but otherwise bearing small resemblance to a bird or to J2, is figured by Caillaud (9) from Bertat. J1 is clearly beaked, but further than this there is nothing to indicate any connection with the iron-beaked trombash. But the possible Libyan origin of the Fan should be borne in mind. In J7, JX_2, the spur is absent. The short curved or pointed spur is found in Sanga specimens in groups H and K, and suggests that the Fan first adopted the trombash in the Sanga region, and that they came (as some maintain) of Monfu-Mangbettu stock, *i.e.*, a stock which does not use the trombash. Schweinfurth notes the resemblances of the Azande to the Fan: but the Ababua are of Zande stock and do not apparently use the trombash.

JX_1 is possibly an important form, as the prototype of the winged types presently to be treated.

GROUP K.

In this group a number of single-blade forms are collected.

Dr. Maes considers a type like K3 to be the origin of the winged forms.

Likeliness is beside the point in discussions of the handiwork of central African races of mentality so different from ours. It is more probable nevertheless that compound types are evolved from simple ones through accidents in the casting or shaping of the metal trombash (*see* J examples above, where a hole might suggest the extra eye of J7, and, want of skill, forms like J10 and 11), than by deliberate addition of new elements.

Another question is presented by the two examples K9 of which one has a wooden reel-shaped handle, viz., whether the sword preceded the throwing knife or whether the thrown knife produced the trombash? This reel-shaped handle is the common form of handle for the indeterminate weapons which are used as ceremonial emblems and for executions in Central Africa, and they are used by peoples like the Mangbettu who do not use the trombash. Dr. Maes inclines to the supposition that the spurred knife became the trombash with a change of handle more adapted for throwing. But with all deference to his experience and knowledge, the contrary is, rather, indicated if, as seems probable, the spurred stick of "F" form as a throwing weapon preceded the winged types.

The spur on the reel-handled falchion or sword is much better explained as a survival, especially as it so often occurs in a form which is much more probably rudimentary than nascent, and that both from its appearance as well as from its usefulness as part of the weapon.

K6 is a Tuareg weapon, very similar to K7 and 11 from the Congo and Aruwimi respectively. See N6 below for another example of a weapon used by the Tuareg and Congo peoples.

KX_1.—This is another example from an ancient Meroitic sculpture; a long weapon like A2.

GROUP L.

This group introduces the winged trombash. A8, A11, F10, FX_2, D10 are examples of the "F" form which broaden out at the top, and indicate that there is no inherent difficulty in connecting the two forms. The beaked type was treated before this type so that it should not break the winged series, and so that JX_1 should precede it. But Shurtz alone contributes this form, which is vaguely assigned to the Upper Congo, a region unlikely to have produced the forerunner of the winged trombash. The claims of K3 have already been considered. It remains to consider B10.

L1 (B10) is assigned in the Leipzig Museum publication to the Krej, variously known as Kreish, Koreish, Kredi, a negroid race of low attainments who inhabit the Dar Fertit-Bahr el Ghazal border region. One would judge it unlikely from Schweinfurth's description of them that they should possess the skill to produce an iron weapon of this standard of art, and it seems far more likely to be a surviving form. But it is a form which seems potentially capable of being the link with the winged forms. It has been difficult to arrange the numerous examples belonging to this group in a satisfactory order, and the arrangement chosen is not meant to be significant. The bend of the body of L1 is reproduced in L10.

The Krej are racially akin to the Azande (*Encyc. Brit.*, A), and it seems probable that among the latter or elsewhere in the Bahr el Ghazal, the prototype of the winged trombash should be sought.

Examples of every type of winged trombash except O are found among the Azande, and it is doubtless from them that they have spread to the Ubangi-Mongalla region and thence or from them (Azande) also to the Baya, Manjia, Banda, and other races of Zande stock. As we pass westwards, as Dr. Maes points out, the wing (or spur) which is large and notched in so many Zande examples, becomes, generally speaking, shorter and straighter. The shaping of the wing, attached to the slender body, probably demands a skill lacking in the races to the eastwards, proportionate to their remoteness from Zande influence.

L11.—Here the crest has become hatchet-shaped (*vide* M1 below).

LX_1.—This occurs in a zone parallel to, and west of, the Sanga, and is more likely to be a debased form than the prototype of this group.

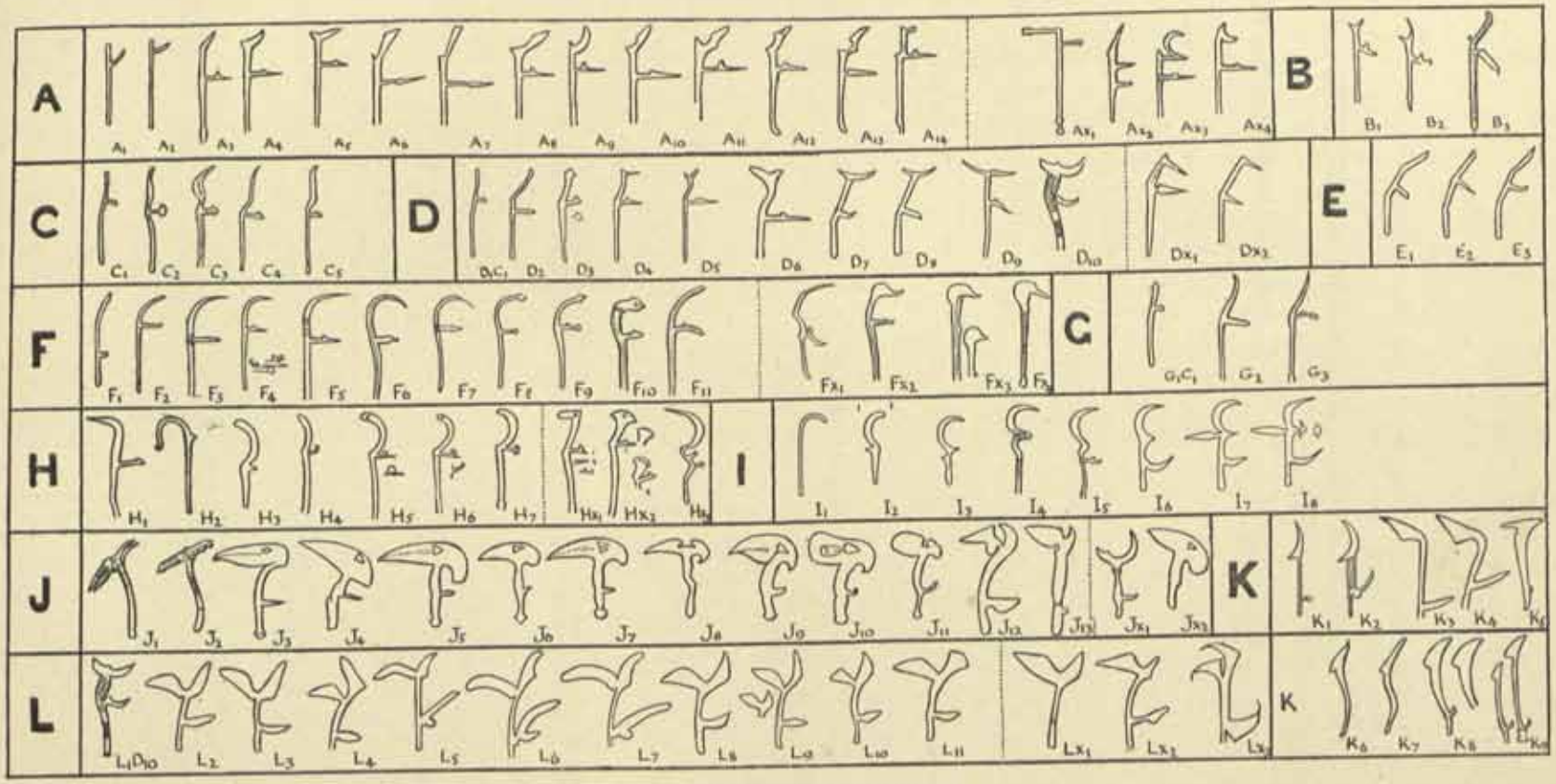


FIG. 1.—TYPES OF THROWING KNIVES.

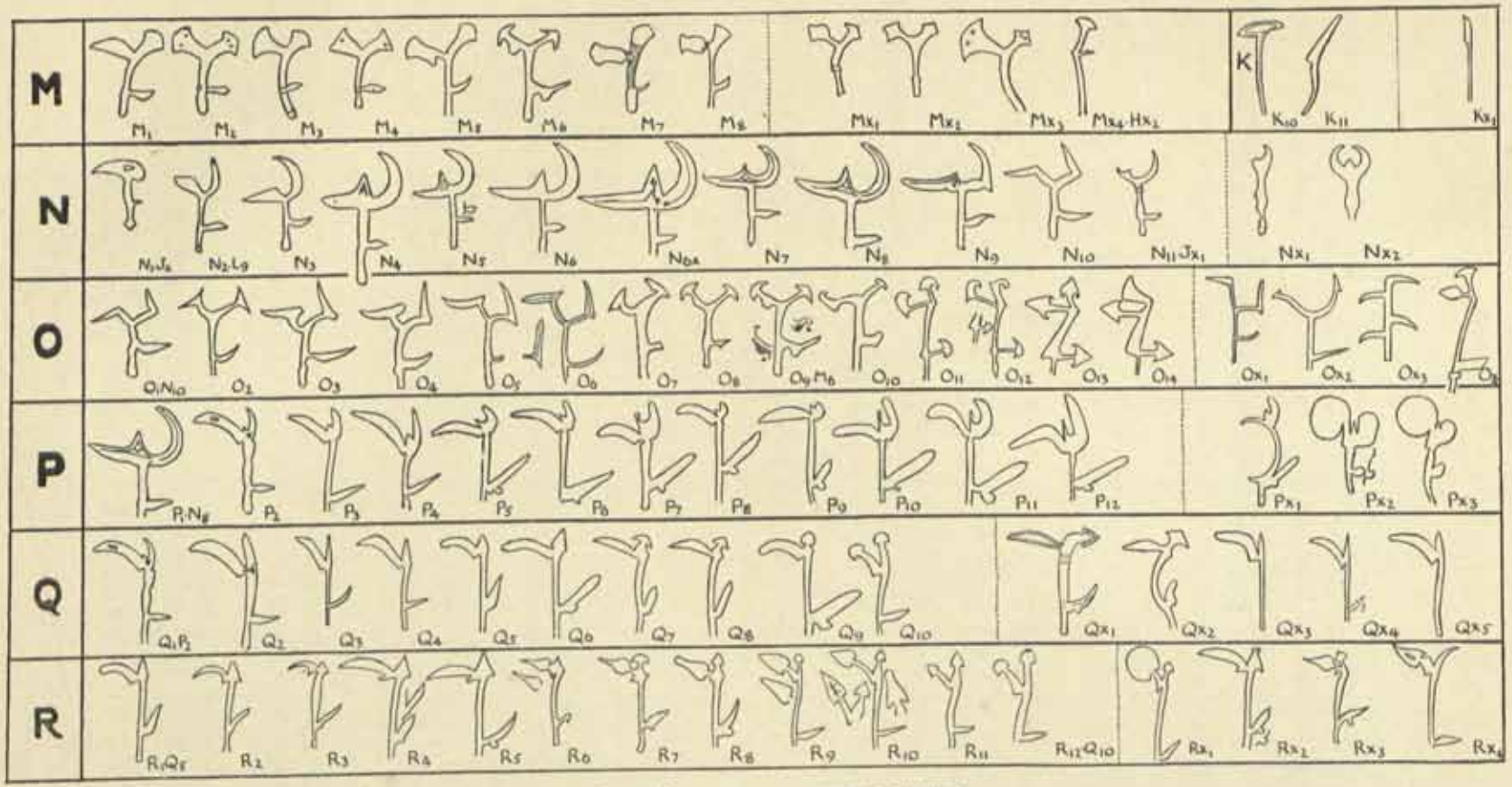


FIG. 1 *contd.*—TYPES OF THROWING KNIVES.

LX_2 from Ngumdere (S.W. Adamawa) is clearly a debased specimen of this group.

LX_3.—This is a well-known object, a ceremonial weapon, known as the Oshela of the Akela, Bankutu, Basongo and Bushongo of the Sankuru-Lukenye district, and north and south of them; the southern limit of the throwing knife. It is also used as currency. Its form warrants its inclusion in this group. While the southern limit, this is also an isolated area, as the trombash appears to be unknown in the vast region between the Akela and the Congo. The name Bushongo by which the Bakuba are also called is said to mean "people of the throwing knife."

GROUP M.

In this group are collected examples with hatchet-shaped blades, headed by L11.

M2, 3 and 4 are Sanga or from west of the Sanga; 2 and 4 have perforated blades like MX_3, H5, 6, X_1, X_2 and K9. All these are Sanga except M3, and there are therefore grounds for assigning them all to one influence, and that Fan.

The spur is separately clamped on like I5.

M6 is interpolated in the series as being possibly influenced in the shape of the underpart of the head by M5, but it clearly belongs to group O.

MX_{1-3}.—The three examples with spurs of separate metal in this group suggest that these three spurless weapons were once similarly fitted; a possibility which should not be lost sight of: they would clearly be imitations of trombash made in one piece.

MX_4.—This has appeared before under HX_2. The shape of the head is clearly comparable with MX_3.

The forms in this group lack the grace and life of the Zande types and are clearly the work of a heavier hand.

GROUP N.

This group is an interesting one. It seems to be the parent of several dissimilar types, and its origin is doubtful. Several examples are marked with an eye. It is not too far-fetched a suggestion that the form has resulted from the break-up of the beaked Fan knife (repeated as N1) by the enlargement of the eye, and that the engraved eye commemorates its origin. N6*a* with the double triangle (engraved and not holes apparently) is reminiscent of J7. In the smallness of the spur, and the shape and set of the stem or body there is a suggestion of a relationship between groups J and N: *e.g.*, between N4 and J5. There are on the other hand strong points of resemblance to examples in the L group, such as L9, which is repeated as N2. We have already considered the possible connection of the beak-headed trombash with the L group.

N6.—The discovery of this form among the Tuareg (18) cannot be considered to be of significance other than chance on the information given. Nothing is said as to whether it is common or not (18).

N10.—This form's evolution is clear. It is repeated at the head of group O.

N11 = JX_1 is reintroduced here as possibly an atrophied form of N7 or 8.

$NX_{1, 2}$.—These are Bangala execution knives and are not trombash. Their shape suggests a derivation from this group type of weapon, both in blade and handle.

GROUP O.

N10 of the last group fitly heads this series. It does not seem to be found east of the Welle-Mbomu confluence. The Fan use the attenuated form X_1. The curiously fantastic examples 11 to 14 are from the Mbum tribe.

OX_3 is a drawing from memory made by an old man of the Bushongo tribe representing the "extinct" trombash of the tribe. A trombash of this group was probably in his mind.

O6.—The blades seem to have suggested birds' heads to the maker, or else the eye is traditional, and a link with a J origin.

OX_4.—This has a wooden handle and is therefore not a throwing knife. It is attributed doubtfully to the Ababua, who do not appear to use the trombash. It is clearly an adapted trombash of O11 or RX_3 type.

GROUP P.

This series has been arranged as derived from a form like N8, because P2, an example which has a fourth element (which develops in P10 to 12 into a central spike), in rudimentary form, has an eye engraved below the crest. The form of the crest, the undulating outline of the stem, and the shape of the wing or spur, are all points of resemblance, counterbalancing the dissimilar fore-blade or beak. This is a favourite Zande type as the enormously developed wing indicates.

$PX_{2, 3}$, from the Upper Ubangi, are unwieldy objects, probably currency, and the work of unskilled hands. The form is perhaps influenced by a type like RX_1. They are of rough thin metal with unsharpened edges.

GROUP Q.

Q2 bears an engraved eye and wavy lines like P2, and for this reason the latter is placed at the head of this series. This group has a wide range across the whole winged trombash area. The modification of the crest is the character of this series as here grouped.

Q10 belongs more properly to the next series but is introduced here in connection with Q9, in which the triangular crest of the preceding example is modified to a bud form.

QX_2 in a vertical arrangement would be linked with PX^1.

QX_4.—It was not possible to tell from the photograph whether this example was spurred or not.

GROUP R.

This series is really part of group Q, with modifications of the beak and crest, culminating in the curiously artistic Zande form RX_3.

R10.—Nothing more definite than Mobangi is given for the provenance of the unique specimen with a lizard engraved on the fore-blade.

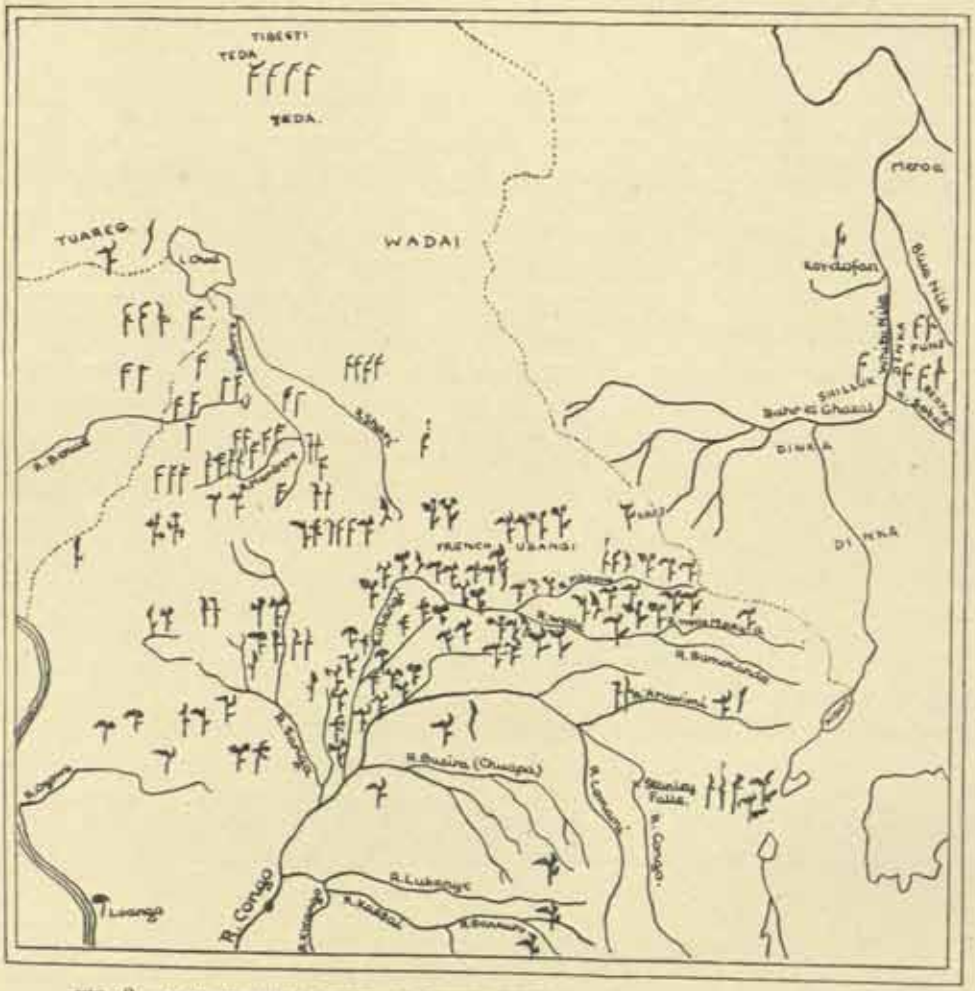


FIG. 2.—MAP SHOWING GENERAL DISTRIBUTION OF TYPES OF THROWING KNIVES.

A few examples of trombash are drawn in on the map (Fig. 2) to show the general distribution of types.

Two Indexes are annexed, one of the trombash giving provenances and authorities, the other of places and tribes giving group numbers of the trombash found there, which will amplify the information given in the above cursory notes.

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The numbers refer to the authorities and sources annexed.

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2. Ancient Ethiopia, Meroe, 22.
3. Hina, Heidem, 24.
4. Lakka, 23.
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1. S. Adamawa, 4.
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5. E. Africa, 8.

D—
1=Cl.
2. Zande, 8.
3. Teda, Tibesti, 3, 4.
Deek, 25.
4. S. Adamawa, 4.
5. Mundong, 5.
6. Lakka, 23.
7. Teda, Tibesti, 3, 4.
8. Teda, Tibesti, 3, 4.
9. ? 8 (Shilluk ?, Dinka ?).
10. Krej, 23.
X_1. Lakka, 23.
X_2. Teda, Tibesti, 3, 4.

E—
1–3. Teda, Tibesti, 3, 4.

F—
1. Ancient E. Libya, 2.
2. Manjia, 13.
3. Marghi, 23.
4. S. Adamawa, 4.
4*a*. Mundong, 5.
4*b*. S. Adamawa, 4.

F—*contd.*
5. Bagirmi, 23; Lakka, 25.
6. Nguduf, 23.
7. Mundong, 5.
8. Dinka, Shilluk, 8.
9. Berta, 9.
10. Funj, 23.
11. Bagirmi, 23.
X_1. Bornu, 4.
X_2. Nguduf, Mandara, 23.
X_3. Pakka, 23.
X_4. Garua, 23.

G—
1=Cl.
2. Bagirmi, 23; Manjia, 7.
3. ? 17 (Azande ?).

H—
1. Sanga, 23.
2. Manjia, 13.
3. Upper Congo, 4.
4. Makka, 26.
5. Sanga, 7; Ubangi, U. Congo, Rubi, 18*a*.
6. Sanga, 7; U. Congo, 8; Deek, 25.
7. Sanga, 7.
X_1. Sanga, 7; Ubangi, U. Congo, Rubi, 18*a*; Makka, 23.
X_2. Stanley Falls, 8; Sanga, 23.
X_3. Bornu, 4.

I—
1. Musgu, 4.
2. U. Congo, 4.
3. U. Congo, 4.
4. Bornu, 23.
5. Nubia, 4.
6. N. Congo, 7.
7. N.W. Mobangi, Giri, Mongalla, Bwaka of Libengi, N. Gobu, 18.
8. Mobangi, 8; Bwaka, Gobu, N. Mobangi, Manjia, 18; Bakota, 23; Buzeru, 27; L. Ubangi, 7; Deek, Adamawa, 30.

J—
1. Bagirmi, 5.
2. Mundong, 5.
3. Fan, 12.
4. Sanga, 7.
5. Lua (Ubangi), 18.
6. Fan, 4.

J—*contd.*
7. Fan, 21.
8. Fan, 4.
9. Gabun, 23.
10. Loango, 23.
11. Fan, 4.
12. Sanga, 23.
13. Njem, Fan, Sanga, 7, 23.
X_1. U. Congo, 4.
X_2. Fan, 7; Gabun, 23.

K—
1. Fan, 14*a*.
2. Fan, 14*a*.
3. Ubangi-Welle, Bornu, Nsakara, Yakoma, Zande, Mbomu, Sabanga, middle Kwango, 18; Mobangi, 7.
4. Ngapu (Banda), 27; Nsakara, 23; Mobangi, 7.
5. Baia, 4.
6. Tuareg, 4.
7. Buja (Bapoto), 18*a*.
8. U. Congo, 4; Sanga, 4.
9. Bafut, 25; Lomami, 4; Bombassa, Makka, 23; Njem, 24; Sanga, Lomami, 7.
10. Bafut, 25.
11. Aruwimi, 16.
X_1. Ancient Ethiopia, Meroe, 22.

L—
1. Krej, 23.
2. Kaka, 25.
3. Banza, Baia, Ubangi, 18.
4. F. Ubangi, 47; Manjia, 13.
5. Ubangi-Mongalla, Welle, 18.
6. Stanley Falls, 7.
7. Zande, 8.
8. Yangere, 25.
9. Mobangi, 7; Shari, 15.
10. Baia, 4.
11. Ubangi, 23.
X_1. Bakota, 23; Baia, 4; Mobangi, 7; Ngumdere, Kaka, Yangere, 25.
X_2. Ngumdere, 25.
X_3. Bakula, Bankutu, Mongo-Akela, Basongo-Meno, 18.

M—
1. Ubangi, 23.
2. Bakota, 23.
3. Makka, 23.
4. Sanga, 23; L. Ubangi, Congo, 4.

M—*contd.*
5. Congo-Mongalla, 18.
6. Mobangi, 7; Ngapu, 27; Congo, 4.
7. Sanga, 23.
8. Congo, 4.
X_1. Congo, 4.
X_2. L. Ubangi, 4.
X_3. N. Sanga, 7.
X_4. Stanley Falls, 8.

N—
1. Fan, 4.
2. Mobangi, 7.
3. Babanga, Monubundu, 18.
4. Banza, 23; Mongwandi, 29.
5. Banza, 29; Aruwimi, 16.
6. Banza, 29; Ngombe, Mobangi, Giri, Mongalla, 18; Tuareg, 18.
6*a*. Banza, 28.
7. Zande, 8.
8. Mongwandi, 29.
9. Banza, Likimi, Bokula, Mongwandi, 18.
10. Banza?, Likimi?, Bokula?, Mongwandi?, 18.
11. U. Congo, 4.
NX_1. Bangala, 4.
NX_2. Bangala, 21.

O—
1=N 10.
2. Mobangi, 7.
3. U. Mobangi, 7.
4. L. Ubangi, 7; Banza, 29; Mongwandi, 28.
5. Mongwandi, Mongalla, Congo, 24.
6. Mongwandi, 28; Banza, 29.
7. Mobangi, 7.
8. Congo, 4.
9. Mobangi, 7; Ngapu, 27; Congo, 4; Ubangi, 23.
10. Mobangi, 7.
11. Mbum, 4.
12. Mbum, 4, 23.
13. Mbum, 23.
14. Mbum, 23.
X_1. Fan, 14*a*.
X_2. Manjia, 13.
X_3. Bushongo, 15.
X_4. Rubi, Mobangi ?, Ababua ?, 18*a*.

P—
1. Mongwandi, 29; Zande, 8.
2. Mobangi, 7; French Ubangi, 23.

P—*contd.*

3. Yakoma, 18.
4. Banza, Gobu, Vedri, Yakoma, Nsakara, 18.
5. Zande, 17, 18, 23 ; Nsakara, Abandia, Mongwandi, Amadi, 18.
6. Stanley Falls, 7.
7. Zande, 17.
8. Mobangi, 7 ; Nsakara, 23.
9. (?), 8 ; (Zande ?).
10. Zande, 8.
11. Zande (E. of 25°), 18.
12. Zande, 8.

X_1. Zande, 20.
X_2. Gobu, Bubu, 18 ; Ubangi Knie, 23.
X_3. U. Ubangi, 7.

Q—

1. F. Ubangi, 23 ; Mobangi, 7 ; Baia, 25.
2. F. Ubangi, 23 ; Mobangi, 7 ; Baia, 4 ; Bwaka, 28.
3. Fan, 14*a*.
4. Upper Ubangi-Welle, Ubangi-Mongalla, N. Banza, Gobu, Vedri, Yakoma, Nsakara, 18.
5. Zande, 17.
6. (?) 8 (Zande ?).
7. Zande, 17.
8. Zande, 17.

Q—*contd.*

9. Zande, 19.
10. Mobangi, 7 ; Ubangi, 23.

X_1. Zande ?, 23.
X_2. Zande, 19.
X_3. U. Mobangi, 7.
X_4. Manjia, 14.
X_5. Baia, 25.

R—

1. Zande, 17.
2. Zande, 4.
3. Zande, 4.
4. Zande, 17.
5. Zande, 17.
6. Zande, 4.
7. Zande, 4.
8. Zande, 17.
9. Zande, 8 ; Ubangi, F. Ubangi 23 ; Mobangi, 7 ; Ngapu, 27.
10. Zande, 19 ; Banza, Gobu, Vedri, Yakoma, 18 ; Mobangi, 7.
11. Ubangi, 23.
12. Mobangi, 7 ; Ubangi, 23.

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X_3. Zande, 4.
X_4. Mobangi, 7,

REFERENCES.

1. *Aegyptus*, III, 23, R. Bartoccino.
2. *Tel el Amarna*, II, Pl. xl, T. G. Davies.
3. *Sahara et Sudan*, p. 259, Nachtgal.
4. *Internat. Arch. für Ethnog.*, Band 2, Pl. 5, Dr. Schurtz.
5. *Chiefs and Cities of Central Africa*, Macleod.
6. *Ban of the Bori*, Tremearne.
7. *Publication von 'Sryks Ethnog. Museum*, Schmelz.
8. British Museum.
9. *Voyage à Méroe*, Caillaud, II, Pl. lvi.
10. Oldman, *Catalogue* 27.
11. *Arch. suisses d'Archéologie générale.*
12. *Adventures in Equatorial Africa*, Du Chaillu.
13. *Congo, Niger and the Nile*, Mecklenburg.
14. *Collection de monograph. ethnog.*, Manjia.
14A. *Collection de monograph. ethnog.*, Kuku.
15. *Mus. Tervueren Cat.*, III, 2, 1.
16. *George Grenfell and the Congo*, II, Johnston.
17. Royal Geog. Museum, Cairo.
18. *Congo*, Feb., 1922, Dr. Maes.
18A. *Congo*, Mar., 1923, Dr. Maes.
19. *Heart of Africa*, II, Schweinfurth.
20. *Travels in C. Africa*, I, 280, Petherick.
21. Handbook to the Ethnog. Coll. in British Museum.
22. Lepsius, *Denkmäler*, x, v. 63.
23. *Jahrbuch des Stadtischen Museums für Völkerkunder zu Leipsig*, VIII, 1918–21.
24. *Illustrierte Völkerkunder*, Dr. G. Buschan.
25. *Adamawa-Deutsche Kamerun Expedition*, 1893–4, Passarge.
26. *Deutscher Kolonial Lexicon*, II.
27. *Route du Chad*, Dybowski.
28. *Im Afrikandschen Urwald*, Thonner.
29. *Vom Kongo zum Ubangi*, Thonner.
30. *Ursprung der Kultur*, Frobenius.

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Bagirmi, A3, F5, F11, G2, J1.
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Research Committee for the Archæological Exploration of Derbyshire Caves.
(Royal Anthropological Institute and British Association.)

REPORT No. 3.

EXCAVATIONS AT MOTHER GRUNDY'S PARLOUR, CRESWELL CRAGS, DERBYSHIRE, 1924.

[WITH PLATE XXII.]

By A. LESLIE ARMSTRONG, F.S.I., F.S.A.

With a Report on the Animal Remains by J. WILFRID JACKSON, *M.Sc., F.G.S., Assistant-Keeper of the Manchester Museum.*

THE site forming the subject of this report is a rock-shelter situated in the forefront of the cave known as Mother Grundy's Parlour at Creswell Crags, Derbyshire. (Ord. Map 1-inch scale Sheets, Derbyshire XIX and XX, Nottinghamshire XII.)

The cave itself is a chamber, 22 feet wide by 35 feet deep, at the eastern extremity of the Creswell ravine. It is on the northern side, and was the last cave of the series explored by Sir W. Boyd Dawkins and the late Rev. J. M. Mello between 1874–9. Their exploration of Mother Grundy's Parlour is described in the *Q. J. Geological Soc.*, vol. 35, 1879.

PREVIOUS EXCAVATIONS.

The original work included an examination of part of the main chamber and the whole of the eastern passage (Fig. 1, A and B). The remainder of the cave (Fig. 1, C) is believed to have been dug under the direction of the late Dr. Laing, of Newcastle, in or about 1887, but no record thereof appears to have been published, and the present whereabouts of the finds is unknown.

Sir Wm. Boyd Dawkins' report (*Q.J.G.S.*, 1879) gives the section at the cave entrance (Fig. 4*a*) as :—

(1) White calcareous sand. No remains.
(4) Red sandy cave-earth. Bones, etc., 2 feet 6 inches.
(5) Surface soil. 5 inches.

The section opposite Chamber B included two additional layers separating No. 1 and No. 4, viz. :—

(2) Ferruginous sand. Bones, 1 foot.
(3) Stiff Red clay. Bones, 6 inches.

The deposits in Chamber B consisted of white sand (1), red clay (3), which increased in thickness to 3 feet, and red sandy cave-earth (4) which in the centre was 3 feet 6 inches thick and filled it in places entirely to the roof. Layers 2 and 3

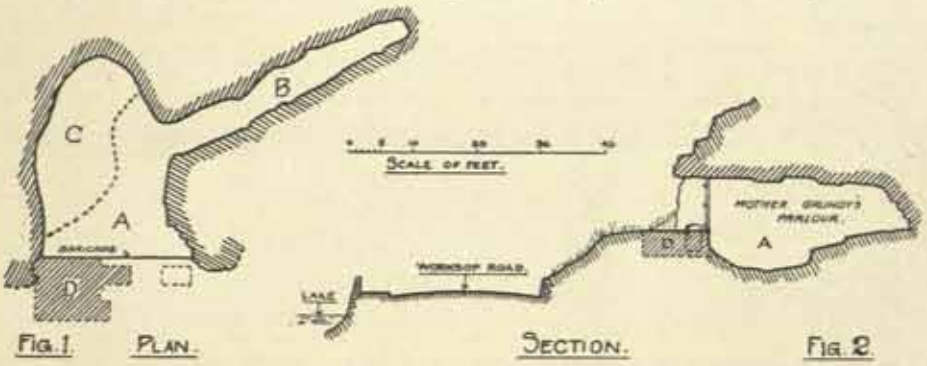
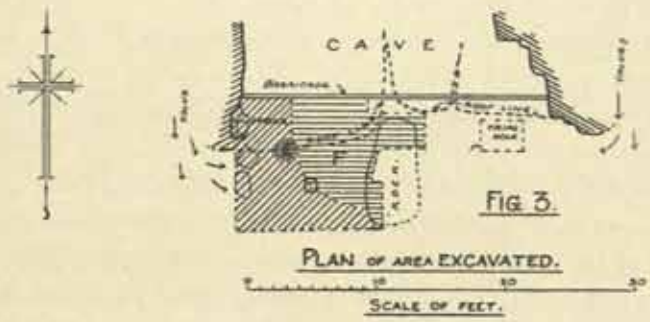


FIG. 1. PLAN. SECTION. FIG. 2.



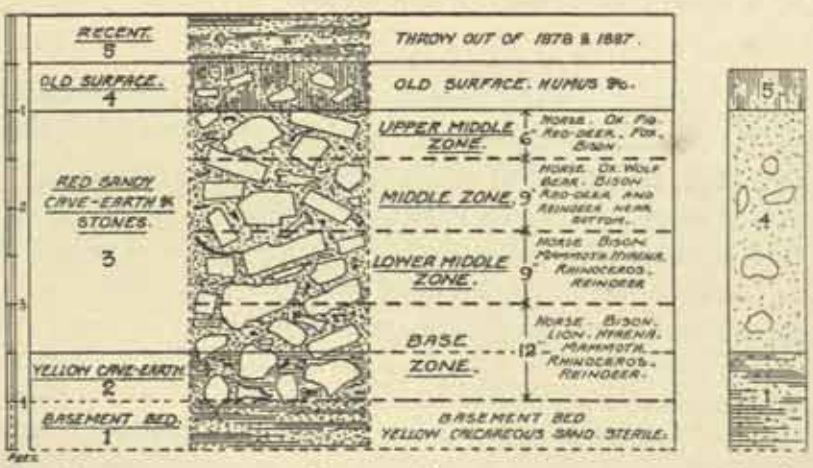


FIG. 4. TYPICAL SECTION. FIG. 4a.

FIGS. 1 TO 4.—PLAN AND SECTIONS OF MOTHER GRUNDY'S PARLOUR EXCAVATIONS.

were strata not found in any other Creswell cave and represented the oldest fossiliferous horizon of the series. The contained animal remains were Hyæna, Bison, Hippopotamus, and Rhinoceros (*R. leptorhinus*). No artifacts were present.

The red cave-earth (Fig. 4*a*) was correlated with the red sand underlying the upper cave-earth and breccia of the Robin Hood and Church Hole caves, the contained animal remains being Hyæna, Fox, Bear, Bison, Reindeer, Horse, Woolly Rhinoceros and Elephas.

Man was represented by implements of flint and quartzite and by fragments of four human skeletons, all belonging to children and youths. Two skulls were recovered, one in Chamber A and one in Chamber B, described respectively as "round" and "long headed." The long skull, found in Chamber B, was at a depth of 2 feet 9 inches beneath the surface, at that point in contact with the roof, and 19 feet 6 inches from the entrance. Above it were the vertebra of a bison and a quartzite splinter. In view of recent developments this skull may be more important than was then realised. All the human remains occurred in the red sand, but those in Chamber A were in strata disturbed by repeated digging and by burrowing animals. None were considered to be of Pleistocene age, though it is stated that—"the conditions under which the skull in Chamber B was discovered were such that it might have been taken to have belonged to one of the Palæolithic inhabitants of the cave, had not the explorations been conducted with all possible vigilance—though found 19 feet 6 inches from the entrance and 2 feet 9 inches from the surface, it cannot be looked upon as belonging to the age of the red sand, although the passage was completely blocked up in places and there were no obvious evidences of disturbance around it."

Having regard to the discoveries made recently outside this cave and to the general advancement of knowledge since 1879, a critical examination of these human remains by a modern anatomist is highly desirable and might yield important results.[1]

The Recent Excavations.

The arched entrance to Mother Grundy's Parlour is in a low cliff only 30 feet distant from the Creswell to Worksop road. A comparatively level platform extends the full width of the cave and 15 to 18 feet in front of it, from the margin of which the ground falls steeply to the road 10 feet below (Fig. 2). This platform, which faces south, is protected at its western extremity by a projection of the cliff (Figs. 2 and 3), and is further sheltered at that point by an overhanging slab of rock. The lake, which now occupies the ravine, is an artificial one. In Pleistocene times the platform was probably 30 to 40 feet above the stream, and, as it commands the valley and a considerable prospect eastwards, would, with its dry shallow cave in the rear, offer to Palæolithic man a desirable place of encampment. Access to the cave having been protected since 1887 by means of a barricade (Fig. 2), the face at which the former excavations terminated had been left almost undisturbed. An examination of this face in May, 1923, yielded flint flakes and other evidence suggesting that the cave platform had not been excavated. Trial holes confirmed this, and located the presence on the sheltered western side, of a living and workshop site.

[1] Efforts are being made to trace these skulls, but have, so far, been unsuccessful.—A.L.A.

The centre portion of the platform was found to be occupied by a large rock, or block of fallen stone (Fig. 3). At the east side only scanty traces of occupation were obtained, but it is proposed to make a more thorough examination of this area subsequently.

Excavations were commenced at the west end by the writer and Mr. G. A. Garfitt, F.S.A., in April, 1924, and carried on, at short intervals, until the middle of October. Owing to the proximity of the site to the road adequate protection could only be secured by filling in the excavation daily, after protecting the working face with large slabs of limestone. This necessitated the removal and replacement of 1 to 1½ tons of earth and stones on each visit, which, together with the careful sieving of the earth and examination of the stones removed, has rendered progress slow, and only 100 square feet of the platform has been excavated, as indicated in shaded lines upon Figs. 1 and 3.

Description of the Layers.

The trial trench across Area D (Plan, Fig. 3), revealed five distinct layers of stratification (Fig. 4), and agreed in general with Dawkins' section of Chamber A (Fig. 4*a*), viz. :—

(1) Basement bed, of yellowish-white calcareous sand and stones.
(2) Yellow cave-earth and stones, 6 inches.
(3) Red sandy cave-earth and stones, 2 feet 6 inches.
(4) Surface layer prior to 1878, 6 inches.
(5) Throw out from previous excavations, 6 inches to 9 inches.

This section (Fig. 4) was constant over the whole of the area excavated, though towards its southern margin No. 3 increased in thickness to 3 feet and showed signs of dipping towards the valley, the contained stones at the same time becoming larger and more abundant and the flint implements fewer.

The existing surface layer (No. 5) consisted of cave-earth and dark humus, material thrown out in previous excavations, as instanced by the presence of teeth of bison and hyæna above the remnants of coal fires and clay pipes. The lower portion was a tangled mass of roots.

The old surface layer (No. 4) averaged 6 inches thick and was composed of dark sandy humus, very matted with roots. It contained charcoal and ashes, fragments of recent and mediæval pottery and tiles, bones and teeth of recent animals, several sherds of Romano-British and Late Celtic wares, and a few flakes of flint and flint implements, of late type, where the layer gradually intermingled with the red cave-earth underlying it.

The red cave-earth and stones (No. 3) varied from 2 feet 6 inches to 3 feet in thickness, and represents the most important layer of the series and is separately described later.

The yellow cave-earth and stones (No. 2) was not more than 6 inches thick. Recent work in the Pin Hole Cave has defined this horizon as that of the Lower Mousterian occupation. It contained a few flint flakes and implements, generally quite perfect and showing only slight signs of use, which suggests that they had been lost and trodden into the sub-soil. Chipped quartzite implements, flakes of quartzite, and bones and teeth of Pleistocene animals, including Lion, Reindeer, Hyæna, Woolly Rhinoceros, Mammoth, Horse and Bison were found in this layer.

The flint artifacts found deepest in the yellow sand were almost, or entirely, unpatinated. Those on the surface had the distinctive cream patina of the layer above (No. 3).

The Basement-bed of yellow calcareous sand (No. 1) is the lowest stratum of the Creswell caves and is unfossiliferous.

Layer No. 3.

The red sandy cave-earth and stones (No. 3), 2 feet 6 inches thick, rested upon and merged almost imperceptibly into No. 2. It consisted of a concretion of large and small fragments of limestone scree, obviously derived from the destruction of the cliff above, cemented compactly together by red sandy cave-earth, which completely filled all the interstices. In places the cave-earth was discoloured by the action of fire and admixture of wood ashes. The whole stratum was implementiferous and contained engraved bones, flint and bone implements, quartzite pebble pot-boilers, hundreds of split bone fragments, many showing traces of fire, animal bones and teeth.

The implements, particularly those from the lower and middle portions of the layer, bear a distinctive creamy-white patina, smooth and lustrous, and frequently encrusted with concretions of lime, or stalagmite.

The stones contained in the layer varied in size from small pieces up to slabs 2 feet 6 inches, by 2 feet, by 6 inches thick, and became more numerous as the edge of the platform was approached, compelling the constant use of an iron bar to dislodge them. This, however, was not without its compensations, for whereas the corresponding layer in the interior of the cave (No. 4 of the 1878 excavations) had been considerably disturbed by digging and by burrowing animals, the stony nature of the layer outside had prevented such and preserved the contents intact.

The contained implements and the animal remains clearly indicate that this assortment of rock and débris represents a slow accumulation extending over a considerable space in time during which an entire change in climatic conditions and in fauna had taken place.

Owing to the nature of the deposit, well defined layers of occupation were not to be expected, and were only present at the extreme top and bottom of the stratum.

Flint implements and bones fractured by man were most numerous in the first 12 inches above the basement bed of yellowish white sand (No. 1) and suggested almost continuous occupation during the deposition of that portion. They were less

abundant in the next 9 inches, though frequent, and a more casual occupation seems to be indicated. In the top 6 inches they again became fairly abundant.

These differences are mainly numerical and in the nature of zones, no corresponding layers were definable. For the purpose of differentiating between the implements the section (Fig. 4) has been divided into four portions, agreeing in general with this zonal distribution of the implements, and termed :—

Base.—Comprising the yellow cave-earth (No. 2) and 6 inches above that level. Contained engravings, bone tools and flint implements of Aurignacian facies.

Lower Middle.—9 inches in thickness and practically continuous with the Base. Flint implements abundant.

Middle.—9 inches in thickness. Flint implements least abundant.

Upper Middle.—6 inches in thickness. Flakes and flint implements of Azilian and early Tardenoisian culture fairly abundant.

So far as circumstances permitted it, the red-cave earth (No. 3) was excavated in a series of vertical slices, 12 inches in breadth, and, where possible, each slice was examined in horizontal layers 3 inches to 6 inches thick, in succession from the top downwards.

Comparison of the Base and Upper Middle Zones.

As might be expected, there is a marked distinction between the two extremities of the section. The flint implements and engraved bones from the Base present Upper Palæolithic facies, those from the top of the Upper Middle, Azilio-Tardenoisian facies.

Fauna.—The faunal differences between the Base and the Upper Middle are equally marked, as the following table will demonstrate :—

	Base.	Lower Middle.	Middle.	Upper Middle.
Bison (*Bison priscus*)	*	*	*	*
Hyæna (*H. spelæa*)	*	*		
Mammoth	*	*		
Rhinoceros (*R. tichorhinus*)	*	*		
Wolf			*	
Horse (? *Equus robustus*)	*	*	*	*
Ox (*Bos primigenius*)			*	*
Lion (*Felis spelæa*)	*			
Reindeer (*Cervus tarandus*)	*	*	*[1]	
Red deer (*Cervus elaphus*)	*	*	*	*
Pig				

[1] One fragment of antler near the bottom of the Zone.

The presence of Lion in the Base may be contemporary with the older series of chipped quartzite implements found there, though it is recorded also at Paviland.

Hyæna is represented chiefly by teeth and coprolites. It was abundant in the corresponding layer of the cave interior. Horse and Bison are abundant, especially the former, which seems to have formed the staple food of the cave-dwellers on this site, from the Lower Middle onwards.

The bones are all highly mineralized. Those from the lower levels of the Base and from pockets of red cave-earth are hard and smooth with a polished surface, but those found between the stones are more brittle and have their surfaces partially destroyed by the action of roots.

The Base Zone.

Quartzite implements.—In the lowest stratum (Fig. 4 (2)) four rudely chipped quartzite implements were found, three chipped pebble scrapers and six flakes of quartzite. In the light of evidence subsequently obtained in the Pin Hole Cave, these are probably referable to Mousterian times, and are similar to those figured from the Robin Hood and Church Hole caves in the *Q.J.G.S.*, 1875, pp. 250, 251. The implements are adapted for use in the hand, the smooth surface of the pebbles being left at the butt end, in each case. Five are figured (Fig. 5 (1), (2), (3), (4) and (5)).

Hearth.—At the top of the yellow cave-earth (No. 2), 3 feet from the cliff face, where marked (E) on Plan (Fig. 3), a definite hearth was found, roughly circular in outline. This had been constructed by scooping out a cup, 9 inches deep, in the yellow cave-earth and lining the sides with tabular fragments of limestone, as seen in the photograph (Pl. XXII), Fig. 6 representing the central section of the hearth. From the ashes, what proved to be a piece of Mammoth ivory can be seen projecting. The surrounding sand was burnt to a bright red for a considerable area beyond and beneath the fire-hole. Black ashes, fragments of split and charred bone and stone pot boilers filled the hearth to a depth of 12 inches. Amongst the ashes were numerous flakes of flint and remnants of implements crackled and destroyed by the heat (Fig. 8 (9), (14), etc.), also a charred hyæna tooth and the fragment of Mammoth ivory referred to above (Plate XXII, Fig. 7).

Around the hearth were great quantities of bone splinters, bones split longitudinally for the extraction of marrow after having been roasted in the fire, bone "marrow scoops," Fig. 16 (2), similar to the examples from Harborough Cave figured in this *Journal*, vol. liii, p. 408; Fig. 5, flint flakes and implements, a few bone tools and the pieces of engraved bone, described later.

It was evident from the abundance of burnt stones, and of objects similar to those enumerated, that fires had been constantly built at this place during the gradual deposition of the Base, Lower Middle and Middle zones.

Throughout the section the most prolific area was within a radius of 4 feet of this point. The sheltered nature of the position no doubt led to its selection, but the

presence there of a recess in the cliff face was probably also a factor. This recess (Fig. 3) is 2 feet 6 inches wide, 1 foot 2 inches deep, and 4 feet 6 inches in height, and forms a natural "ingle nook," having a wide slab of limestone as a seat at the required height. That it had been the favourite seat of the flint workers of the Base and Lower Middle, the abundance of chippings around it testified. 272 pieces, exclusive of 12 implements, were recovered there in a cubic foot of material.

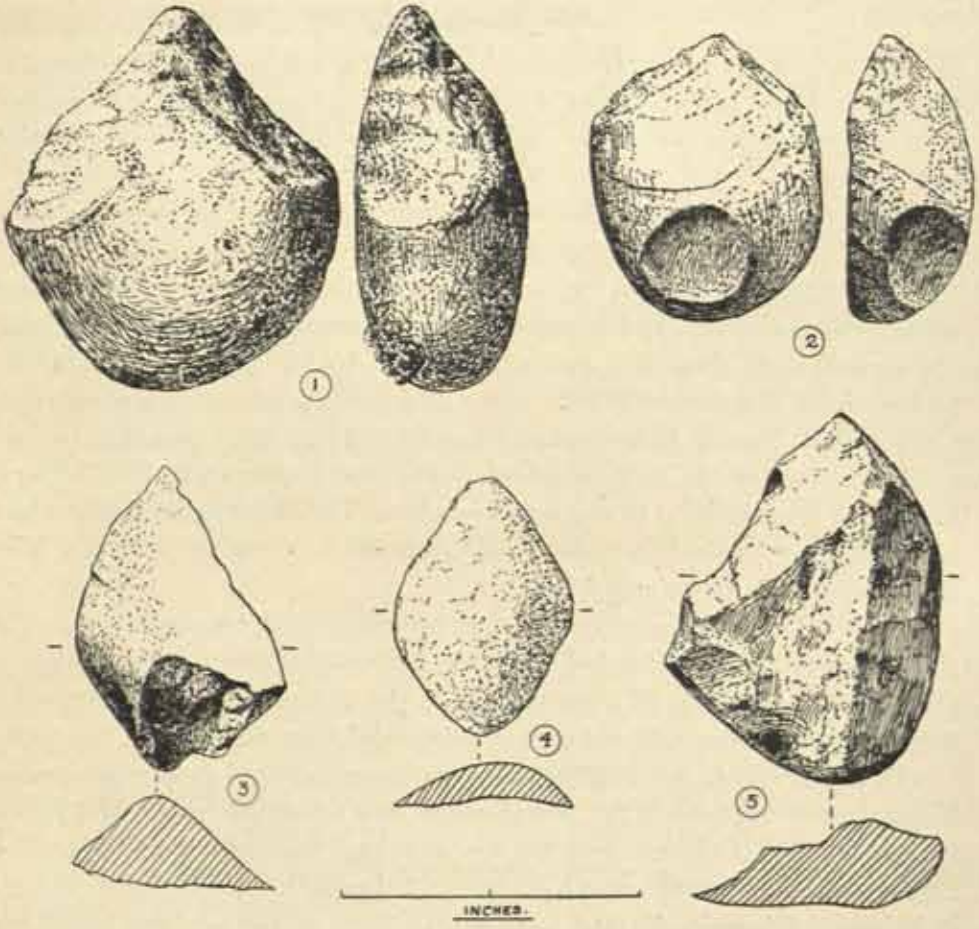


FIG. 5.—QUARTZITE IMPLEMENTS AND FLAKES FROM BASE ZONE.

A well worn circular hammer stone, or pounder, 3½ inches in diameter and 2 inches thick, of quartzite, was found in a crevice in the corner of the "ingle."

Bone objects.—At the hearth level, and 2 feet distant from it, fragmentary portions of two important bone objects were lying. The first (Fig. 16 (3)) is a piece of cylindrical rod, part of the shaft of a bone point, beautifully worked in reindeer antler and polished smooth. It is 48 mm. long, 8 mm. in extreme diameter, tapering to 7½ mm.

The second object (Fig. 16 (4)) is the bevel end of a single bevel lance point, 43 mm. long, 8 mm. extreme diameter. This may also be of reindeer antler, but the material is uncertain.

A few tools of ruder workmanship were found, worked in each case out of fractured pieces of bone. Fig. 17 (1), (4) have oblique ends smoothed by rubbing, and with the angles rounded by use. Fig. 17 (2), (5) are awls, each considerably worn at the point.

The Engravings.

Throughout the excavations careful observation has been kept for engraved stone or bone, and every fragment of bone upon which there was the least likelihood of an engraved surface was brought away and subjected to close scrutiny after washing and drying.

Nearly 500 have been examined, but only three pieces have proved to be engraved.

In each instance they are fragments of the hard lustrous bone found in the top of the yellow cave-earth and in pockets of the red cave-earth. On all other bones the surface, when cleaned, is generally found to be too much corroded for the preservation of fine engraved lines.

Pl. XXII, Figs. 2, 3, 4, shows photographs, and Fig. 15 (1), (2) and (3) real size outline tracings of the three specimens. The most important, Pl. XXII, Fig. 3, and Fig. 15 (2), is believed to represent a reindeer. The engraving is freely executed with a clean cut incised line, the technique of which is considered by Mr. Miles C. Burkitt, F.S.A., to be Aurignacian.

Pl. XXII, Fig. 2, and Fig. 15 (1) is a remnant of a large engraving. The piece recovered bears the head of the animal, probably a Bison. There are also a series of cuts and groups of engraved lines on the curved angle of the bone which suggest that it originally formed part of a decorated bone object.

Pl. XXII, Fig. 4, and Fig. 15 (3) is very fragmentary but an interesting piece. The surface of the bone is flat, the engraved lines are deeply incised and appear to represent part of the head and horns of an animal, believed to be a Rhinoceros. Representations of the Rhinoceros are rare in Palæolithic art, only six are figured in Reinach's *Répertoire de l'Art Quaternaire*. Three of the best are reproduced for comparison with the Creswell example in Fig. 15 (4), (5), (6), from Font-de-Gaume and Lourdes respectively. The engravings are contemporary with the hearth, in close proximity to which they were found. One specimen, the Reindeer, shows slight signs of burning.

In addition to the above, a piece of bone 5 inches long was found in the hearth area, upon which a drawing can be traced which seems to be an animal similar to the 1875 example, but, on account of fissures in the bone and the etching of the surface by roots, is rendered too uncertain in character to be classified as an engraving.

Flint implements.—These will be discussed later, from each zone consecutively.

Lower Middle Zone.

The general character of this zone is in agreement with the description given of the Base.

Flint implements and flakes were very numerous and distributed fairly equally throughout the thickness. Two pieces of Mammoth ivory were found.

Bone objects.—The most important find was an object of Reindeer bone, smooth and with an ivory-like appearance. It has been rubbed down to a sharp edge at the end, shows signs of considerable use, and would prove a suitable tool for skinning purposes (Fig. 16 (1)).

Several bone "marrow scoops" were found (Fig. 16 (2)).

Middle Zone.

The flint implements and flakes here were less numerous than in the lower layers but freely distributed. Remains of Reindeer were represented by one fragment of antler only, which occurred near the bottom of the zone. Horse was abundant. *Bos primigenius* and *Cervus elaphus* were present. Traces of fires were noticeable but no definite hearths or pieces of charcoal.

Bone objects.—A bone awl, formed from the splint bone of Horse, with the point broken off and bearing distinct signs of rubbing, or use, was the only bone tool found (Fig. 17 (3)).

Upper Middle Zone.

Other than flint implements, this zone yielded no relics calling for special mention. The upper portion merged gradually into the soil of the old surface layer, and upon the whole the red cave-earth was slightly darker in colour. Shells, chiefly of *Helix nemoralis*, were very abundant. The artifacts were most numerous within the area marked "F" upon the Plan (Fig. 3).

The Flint Implements.

One thousand five hundred and fifty-seven flakes and pieces of worked flint have been found in the course of the excavations.

Flint is not native to the site, and is not known to the writer to occur within a radius of 30 miles, even as an erratic in the glacial drift. Consequently, every fragment found at Creswell has been imported, and economy in the use of the material accounts for recognized types of implements being here somewhat smaller in size than their Continental prototypes, also for the almost entire absence of cores. Many of the flakes show signs of use, but the material has been, on the whole, used more prodigally than it was upon the moorland sites of Yorkshire, of later (Transitional) date.

It is significant that the grey and black cherts which occur freely in Derbyshire and within 10 miles of Creswell, are entirely absent, except in the Upper Middle where

10 pieces were observed. This material was frequently used in the Transitional industries of the South Yorkshire Moors and Pennines.[1]

The flint of Mother Grundy's Parlour is a fine quality grey, or black, chalcedonic variety in the form of small nodules, bearing a smooth, thin, brown crust. Some of the crust shows traces of water-scouring, and probably the source of origin is to be looked for in Glacial drift to the South or East.

The industry as a whole is a rich one and includes most of the typical Upper Palæolithic forms.

The predominant implements are blades with retouched backs and points of various types (Figs. 6 and 7). Burins are present but infrequent, and include examples of the ordinary burin and of the angle, screw-driver, polyhedral, Noaille and pygmy forms (Fig. 9).

The outstanding and characteristic implement of the Base and Lower Middle Zones is a shouldered point, resembling a Solutrean *point-à-cran*, generally assigned to the Upper Aurignacian (Fig. 6 (3), (4), (5), (6)).

These are associated with Chatelperron and Gravette points and their modifications (Figs. 7 and 8). Scrapers of characteristic types are present (Figs. 10 and 11) but not numerous. Throughout the four zones these forms persist but become gradually modified towards the top of the section. In the Middle and Upper Middle the modification of the shouldered point is very evident, and the general tendency in form is towards the geometric (Figs. 6 and 13). Finally, Azilian types and early Tardenoisian microliths occur (Figs. 9 and 13), including the typical pygmy burin, of which seven definite examples have been recovered (Fig. 9, 15 to 21).

The change in character is gradual and practically imperceptible, but the distinction between implements of the Base (Figs. 6 and 7) and of the Upper Middle (Fig. 13) is absolute.

The stratification of the site, the fauna and the distribution and technique of the artifacts, all denote that this rock shelter had been periodically occupied, most probably by hunting parties, throughout an extensive period in time. The men of the Base and Upper Middle were contemporary with the Rhinoceros, Mammoth, Hyæna, Lion, and Reindeer. This periodic occupation was continued until more genial climatic conditions led to a change in fauna, and the Rhinoceros and Reindeer gave place to the Horse and Bison—a practically continuous occupation, as a camping ground, from the Reindeer period to the incoming of the Azilio-Tardenoisian culture.

Technique.

The secondary flaking is of excellent workmanship and, as a general rule, the retouch is from below upwards. In the upper portion of the Lower Middle a few of the implements show a bolder, less skilful technique, notably Fig. 8 (16) and (8),

[1] *P.S.E.A.*, vol. iii, p. 280. Armstrong, "South Yorkshire Surface Implements."

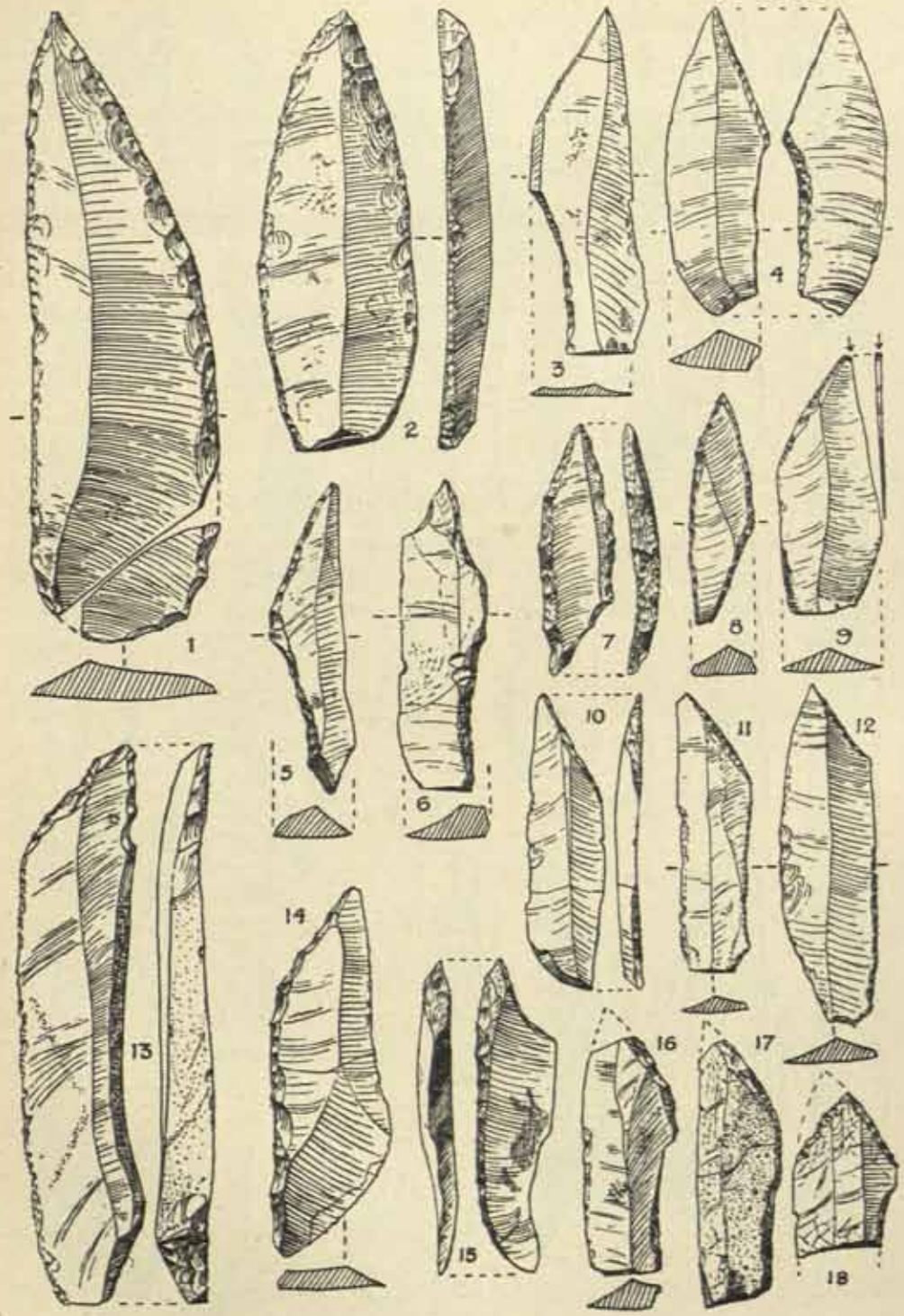


Fig. 6.—(1), (2), (3), (4), (5), (9), base; (6), (7), (10), (13), (14), (16), lower middle; (8), (11), (12), (15), (17), (18), middle. (½.)

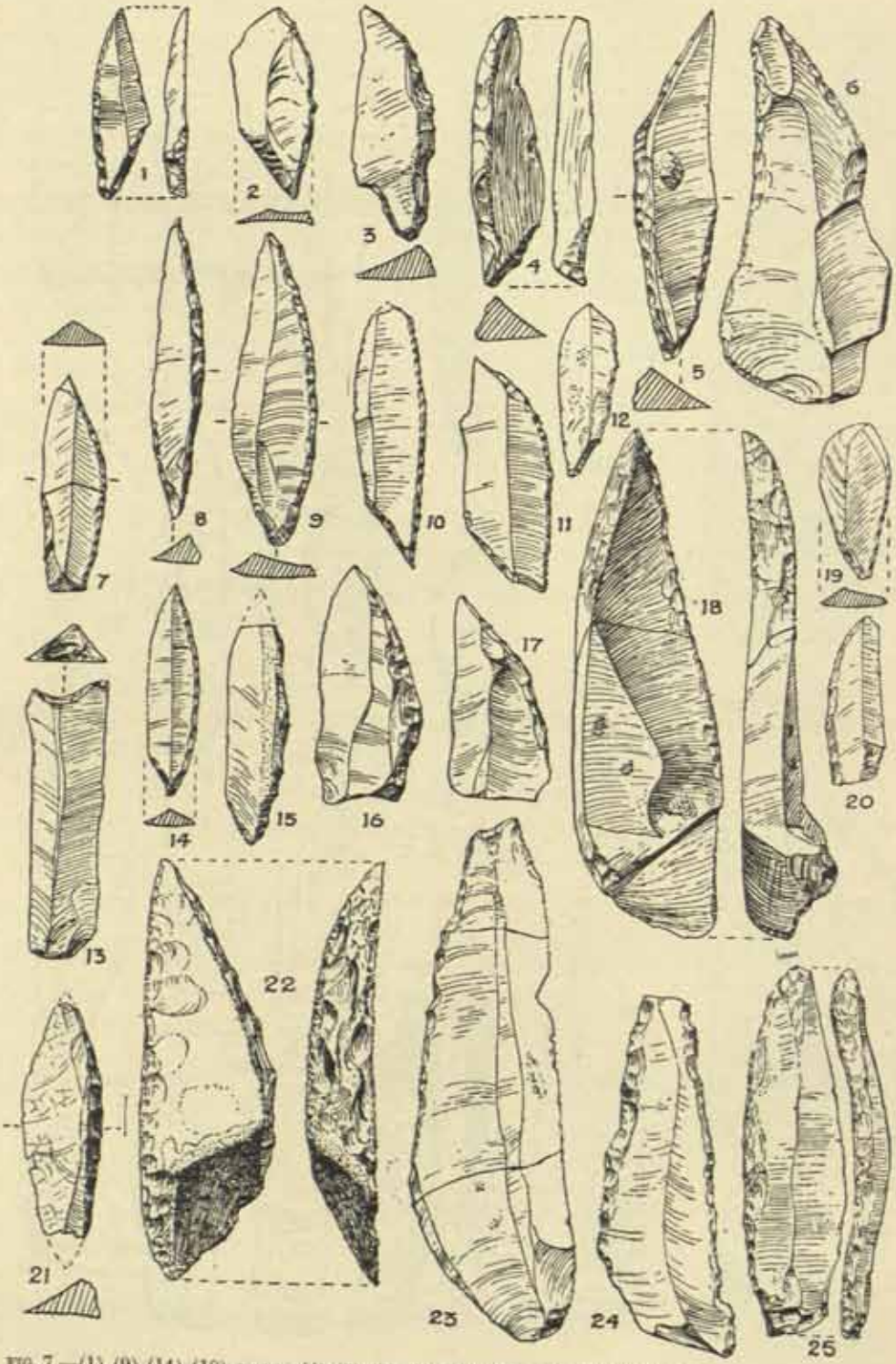


Fig. 7.—(1), (9), (14), (18), BASE; (4), (5), (7), (8), (11), (13), (15), (16), (21) to (25), LOWER MIDDLE; (2), (3), (6), (10), (17), (19), MIDDLE; (12), (20), UPPER MIDDLE. (¼.)

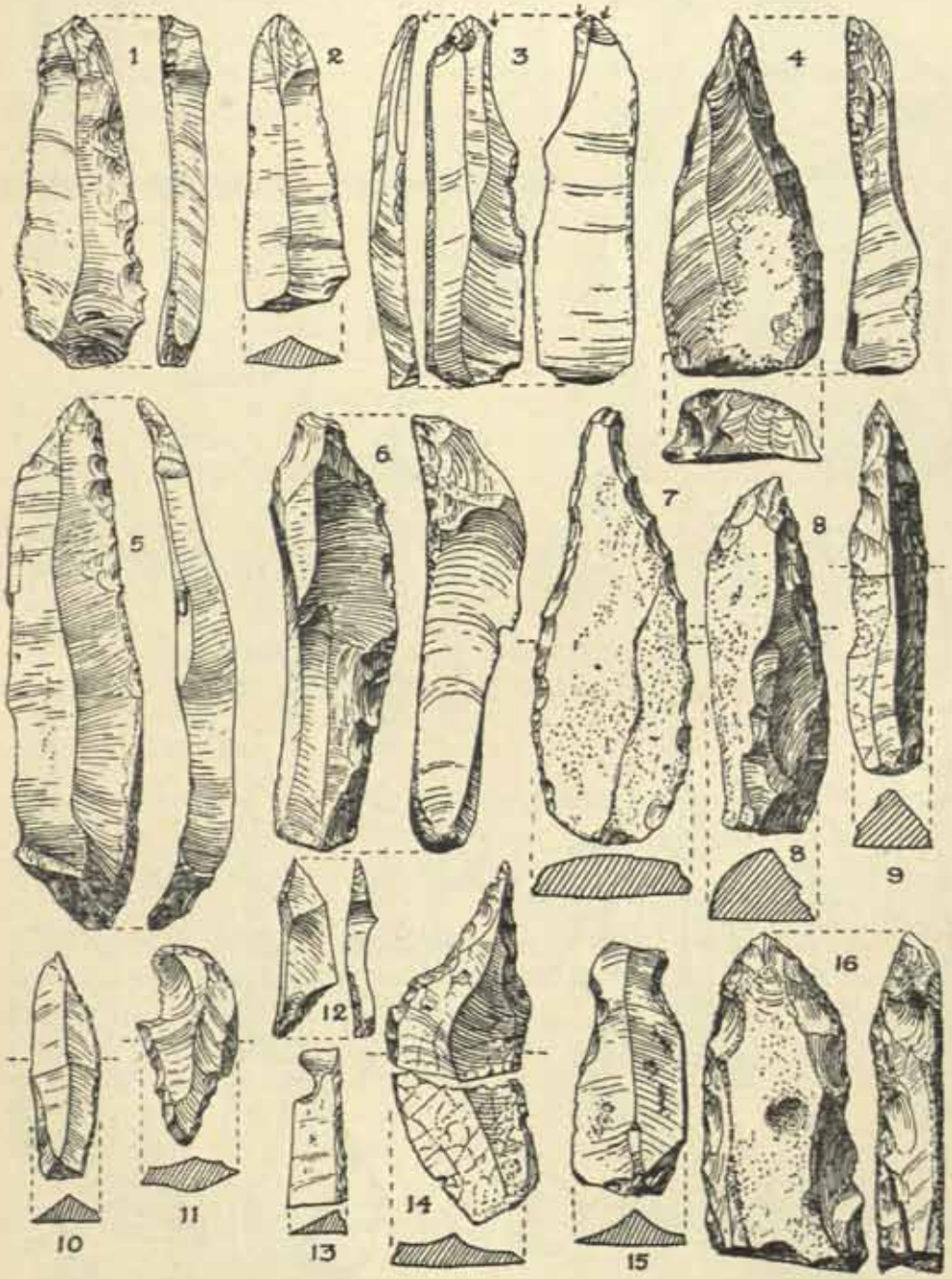


FIG. 8.—(4), (7), (14), BASE; (1) to (3), (5), (6), (8) to (11), (13), (15), (16), LOWER MIDDLE; (12), UPPER MIDDLE. (½.)

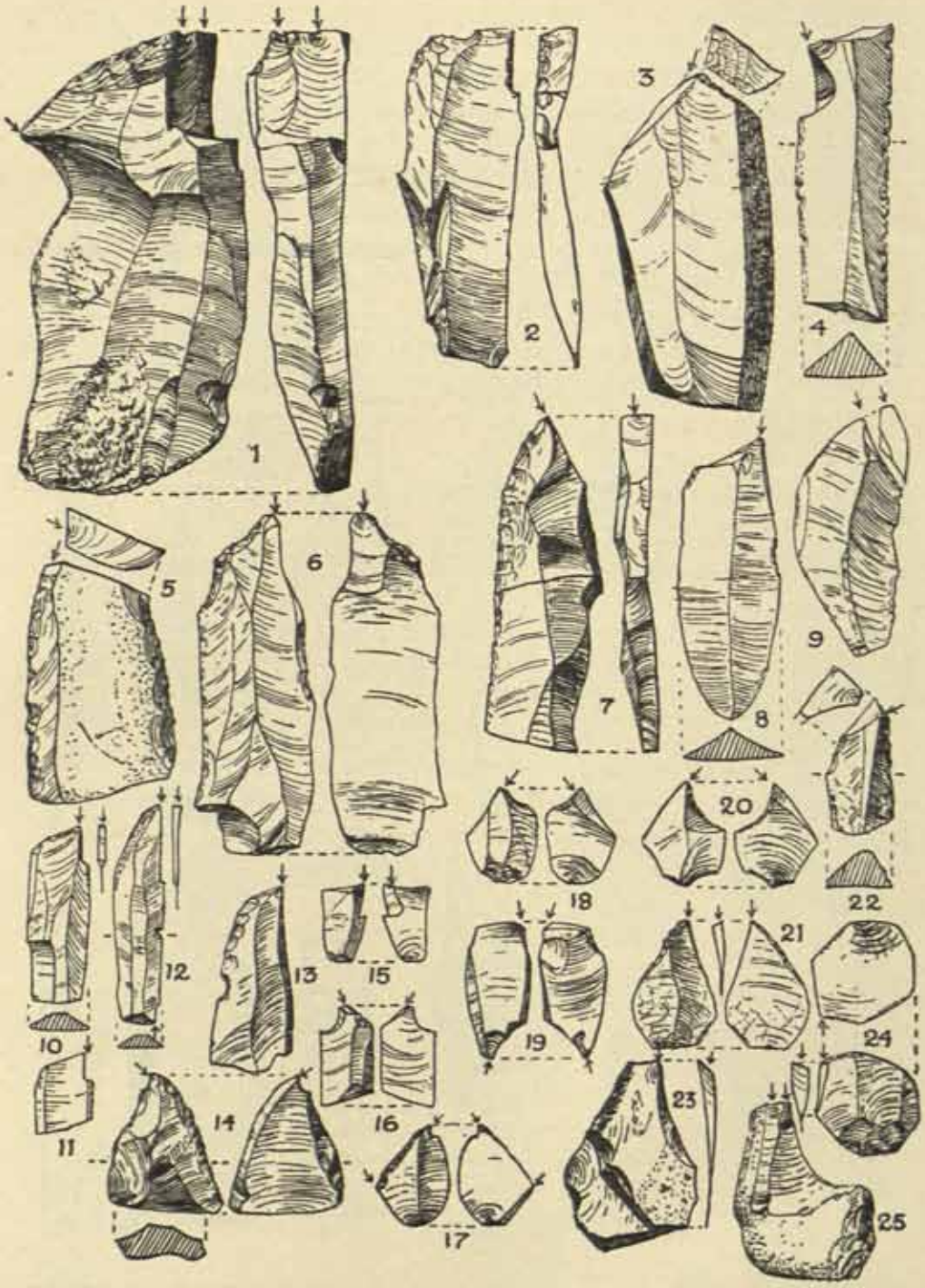


Fig. 9.—(1), (2), (5), (7), (10), (11), (12), base; (3), (8), (9), (13), (22), lower middle; (4), (6), middle; (14) to (21) and (23) to (25), upper middle. (¼.)

and in the Middle and Upper Middle a "nibbling" retouch is noticeable, generally at an oblique angle and invisible on the upper face, for example, Fig. 13 (3), (9) closely resembling the Magdalenian retouch seen on Fig. 6 (4).

With few exceptions, the implements are made from truncated flakes, as seen in Fig. 6 (4), (5), (6), (10), (15) and Fig. 13 (3), (9). This is very noticeable in the case of the scrapers, Fig. 10 (6) to (11), none of which show any trace of the bulb. Upon a small proportion of the later scrapers, such as Fig. 10 (13), (14), Fig. 13 (25), and on a few implements, such as Fig. 12 (22) to (25), the bulb is retained. Two-period working and double patination is present on Fig. 7 (25) and Fig. 13 (34), (35).

A large proportion of the implements found in proximity to the Base hearth show traces of fire, such as Fig. 7 (21), Fig. 8 (14), (9) and Fig. 12 (5). Fragments of a number of well-made implements destroyed in this manner were recovered.

Broken implements are very numerous and by carefully sorting the fragments it has been possible to effect refits in many instances, notably Fig. 6 (3), (6), (10), (14), Fig. 7 (18), (23), Fig. 8 (9), (10), (14), Fig. 9 (7), Fig. 12 (5), and Fig. 13 (1). The broken tools were commonest in the Upper Middle and the refits have been the fewest there.

Signs of constant use, which has resulted in the smoothing down and polishing of the tips and chipped edges of the implement, is conspicuous upon Fig. 8 (6) at both butt and tip, Fig. 10 (5) at the butt, and upon Fig. 12 (10), (21) at the tips.

In general facies the industry resembles that of the Aurignacian Station of Durand Ruel (Les Rebières II), Dordogne,[1] amongst the artifacts from which those of the Base and Lower Middle can be paralleled in almost every instance. This series also has affinities and parallels with the Middle Aurignacian artifacts from Paviland.[2] There is also a striking resemblance in the Lower Middle and Middle series to the artifacts from the Grotte-de-Martinrive,[3] Belgium. The series from the Mendip cave, Aveline's Hole,[4] has also close affinities, though the retouch at Creswell is upon the whole finer, and the forms more symmetrical, and it appears probable that Avelines Hole is comparable in time with the Middle and Upper Zones at Mother Grundy's Parlour.

The Tardenoisian types recall some of those from the Belgian stations described by M. Leon Lequex.[5]

Implements from the Base Zone.

Symmetry and delicate trimming characterises this series, of which the following are the most important pieces.

Points.—Fig. 6 (2) found in the red sand at 3 feet 6 inches deep. Fig. 7 (18), Fig. 8 (4), (7), and Fig. 12 (2), (5), (6), (7), all fragmentary pieces. Fig. 11 (11).

[1] Eugène Pittard and R. Montandon, *C.I.D.*, Geneva, 1912, p. 450.
[2] W. J. Sollas, M.A. "Paviland an Aurignacian Station," Huxley Memorial Lecture, 1913.
[3] M. Lohest, J. Hamal-Nandrin, J. Servais and Ch. Fraipont, *R.A.*, Dec., 1922, p. 349.
[4] J. A. Davies, *U.B.S.S.*, vol. i, Proceedings, p. 61.
[5] Leon Lequex, "Stations Tardenoisiennes," *S.A.B.*, 1923.

Shouldered points.—Fig. 6 (3), a choice example extremely thin and comparable with that from the Pin Hole Cave (Fig. 14 (2)), also Fig. 6 (5), both found at a depth of 3 feet 6 inches. Fig. 6 (4) is an interesting implement and the only piece found which exhibits the typical Magdalenian retouch and supports the evidence of the Pin Hole Cave ivory point (Fig. 14 (1)), referred to later.

Châtelperron points are not conspicuous. Fig. 6 (1) and Fig. 7 (9) are the only examples.

Blades.—Fig. 6 (9); Fig. 7 (1), (14), the latter a thin microlithic blade of choice workmanship; Fig. 11 (2), unpatinated; (8), notched; Fig. 12 (3).

Burins.—Fig. 9 (1) polyhedral; (2), (5) ordinary, the latter of rather uncertain character; (7) screw-driver; (10), (11), (12) Noaille.

Piercers.—Fig. 8 (14), Fig. 11 (7) an exquisite drill of the type believed to have been used for piercing the eye of bone needles.

Scrapers.—Fig. 10 (1) an end scraper on a blade (3), (12), Fig. 11 (1) round, approaching the keeled type, fluted on face and with encoches on the sides, and a rectangular corner.

Lower Middle Zone Implements.

This zone is practically continuous with the Base and differs but little from it.

Points.—Fig. 6 (7), with the retouch carried around all its edges; Fig. 7 (22) an exquisite implement, very Aurignacian in character (24).

Fig. 8 (1), (2), (5), (6), (8), (9), (16), most of which exhibit bold steep chipping and fluted work; Fig. 12 (1) a fragment.

Shouldered points.—Fig. 6 (6), (16), Fig. 11 (9), from near the top of the zone and exhibiting modification of the shoulder.

Blades.—Fig. 6 (13), found at 2 feet 6 inches, shows considerable wear and has the ends trimmed obliquely; Fig. 7 (23) has the tip worked slightly concave and the retouch carried laterally down the blade a short distance, features also noticeable in Fig. 12 (15), (16); Fig. 7 (4), (11), (15), Fig. 11 (4), (17), Fig. 12 (4), (8), (9), (10), (14). Fig. 13 (21), *Blades with square* or concave ends. Fig. 7 (13), Fig. 12 (11), (12), (13), (20), *Blades with oblique ends.* Fig. 12 (15), (16), (18).

Châtelperron points.—Fig. 7 (21), (25).

Gravette points.—Fig. 6 (10), (14), Fig. 7 (5), (7), (8) (an exceptionally fine implement), (16), Fig. 8 (10), Fig. 11 (10).

Piercers.—Fig. 12 (17).

Burins.—Fig. 8 (3) angle. Fig. 9 (3) ordinary, (8), (9), (13), (22) angle. Fig. 13 (12), (13) Noaille.

Knotched pieces.—Fig. 8 (11), (13), (15).

Scrapers.—Fig. 10 (7), (8), (9), (10) round; end on blade (2); end (6); Fig. 11 (3), (5).

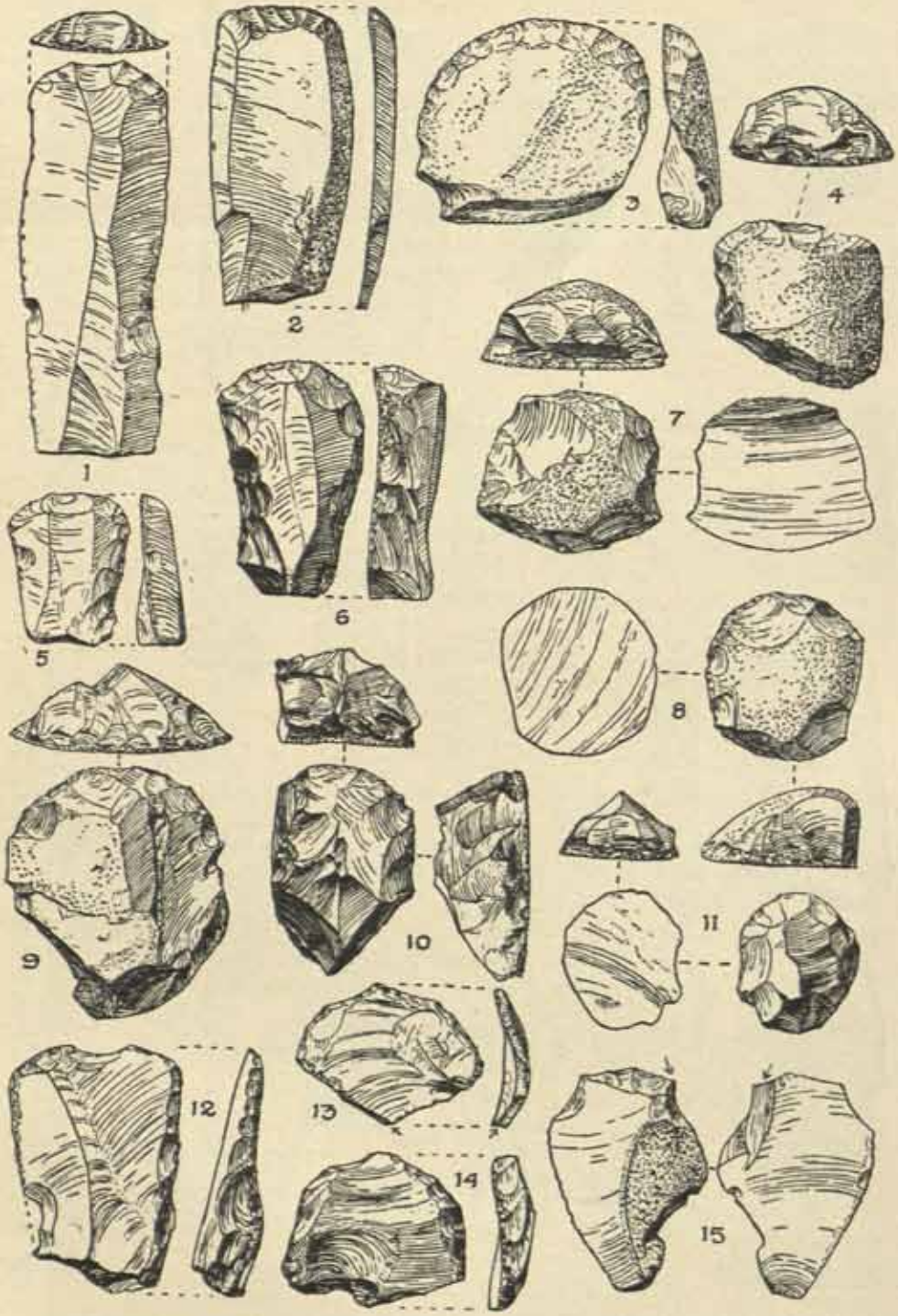


Fig. 10.—(1), (3), (12), base; (2), (6) to (10), lower middle; (4), (5), middle; (11), (13), (14), (15), upper middle. (1/1.)

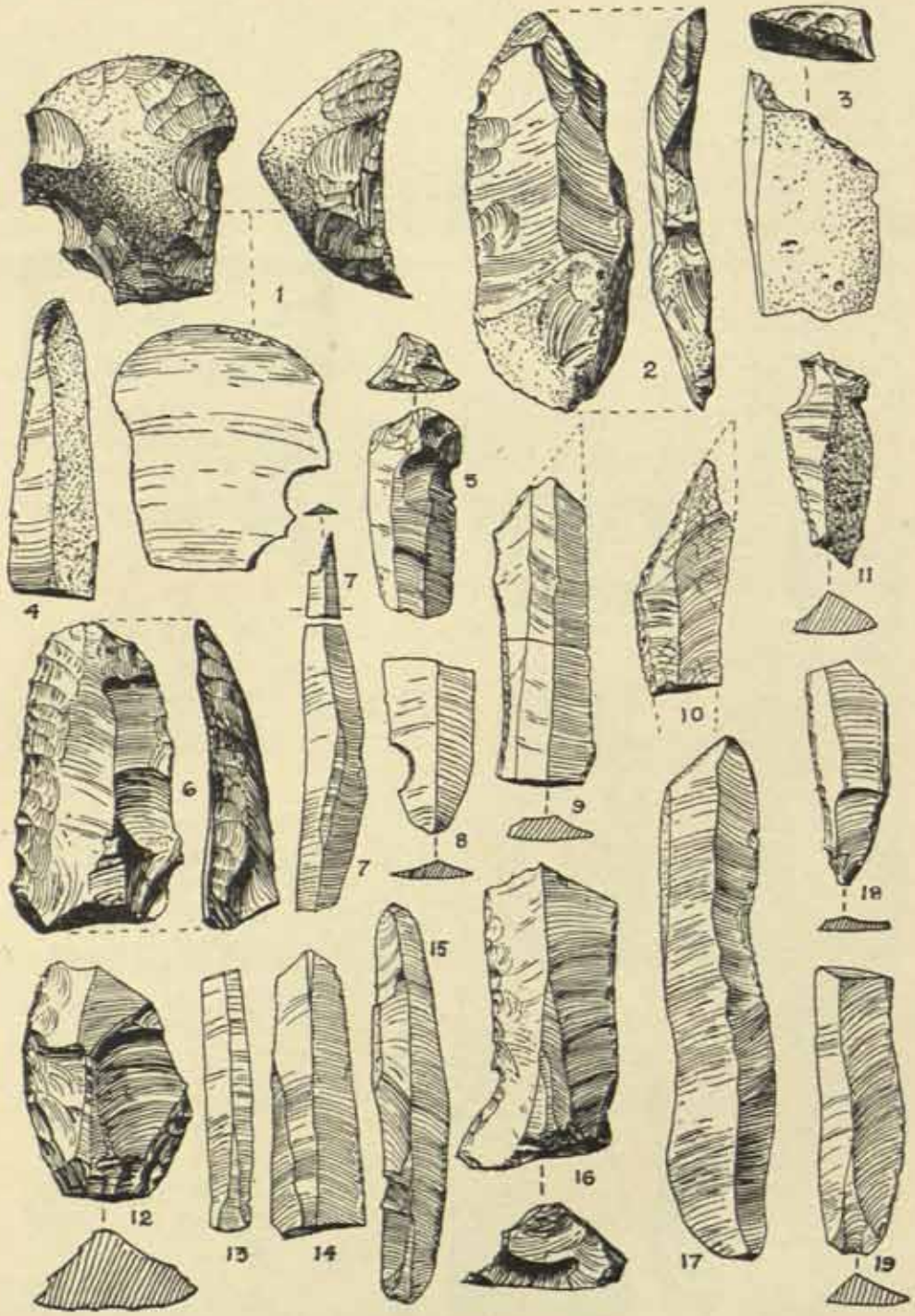


Fig. 11.—(1), (2), (7), (8), (11), (16), base; (3), (4), (5), (9), (10), (12), (17), lower middle; (18), middle (double patination); (6), proto-solutrean from top of lower middle; (13), (14), (15), (19), typical used flakes. (½.)

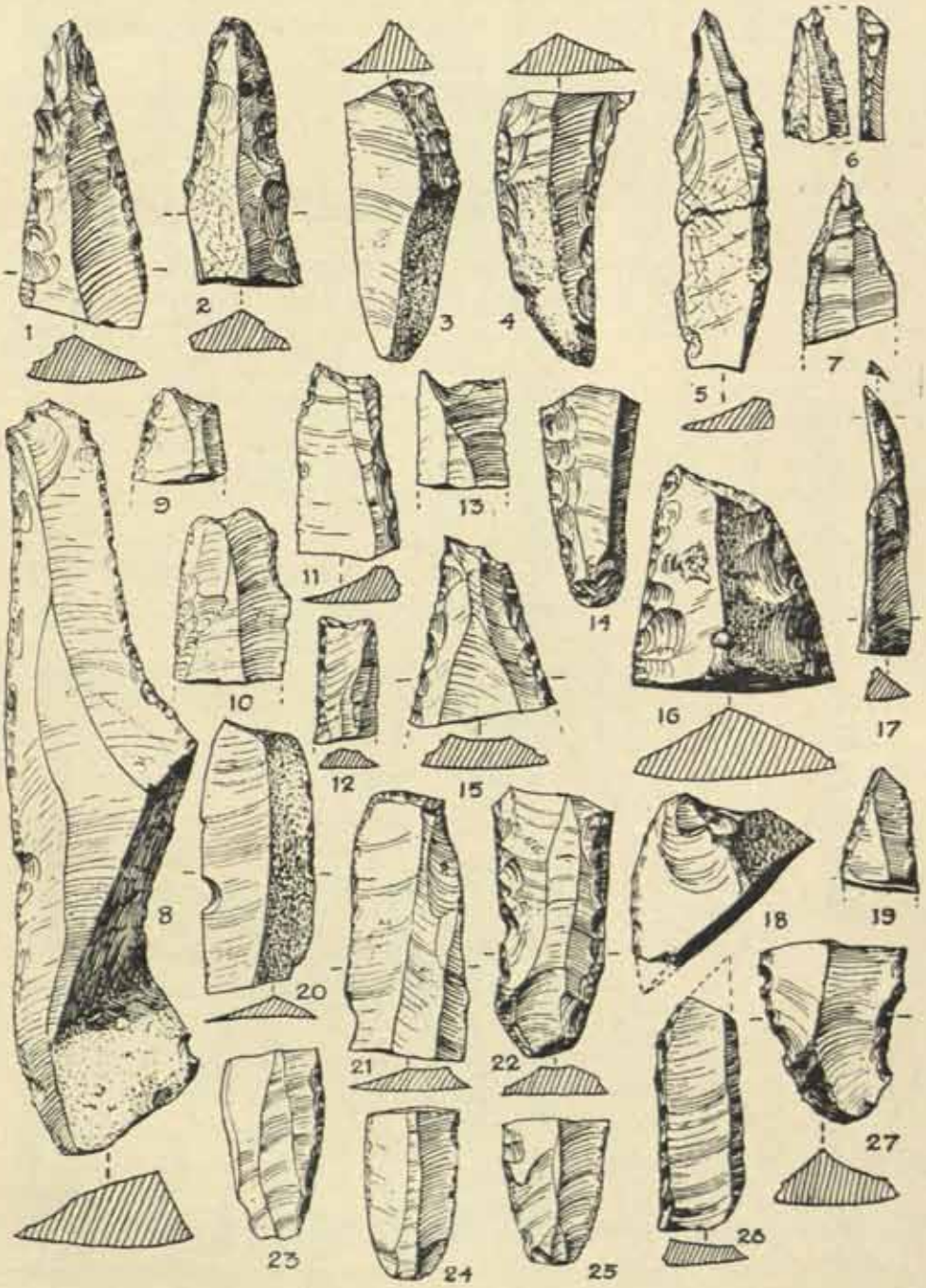


Fig. 12.—(2), (3), (5), (6), (7), base; (1), (4), (8), (9) to (20), (22), (27), lower middle (21), (23), (24), (25), (26), middle. (½.)

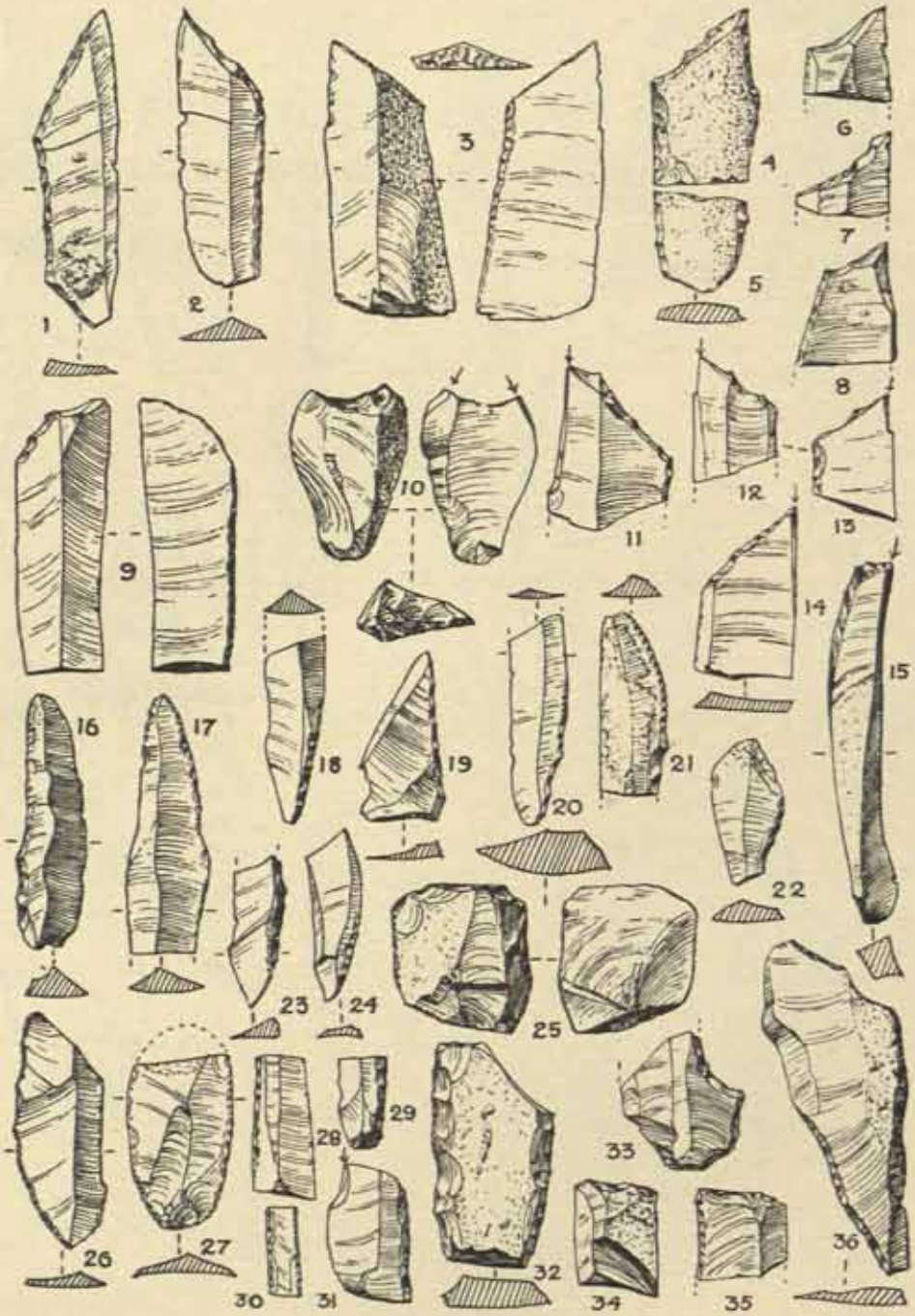


Fig. 13.—(12), (13), (21), lower middle; (1), (2), (3), (11), middle; (4) to (10), (14) to (20), (22) to (36), upper middle. (½.)

Proto-Solutrean.—Fig. 11 (6), an interesting piece exhibiting scaled retouch and surface flaking, found at 2 feet 6 inches near the top of the zone and may possibly be derived.

Middle Zone Implements.

Points.—Fig. 6 (8), with all edges retouched and resembling (7), from the Lower Middle. Fig. 13 (1), (2), (3) all exhibiting geometric tendencies.

Shouldered points.—Fig. 6 (17), very modified in form; (18), a burnt piece.

Gravette points.—Fig. 6 (11) (a modified form of Fig. 6 (10)). Fig. 7 (17), Fig. 13 (26).

Blades.—Fig. 6 (12), Fig. 7 (2), (3), (6), (10), (19), Fig. 11 (18).

Piercers.—Fig. 6 (15), a modified form of Fig. 6 (6).

Burins.—Fig. 9 (4), (6). Fig. 13 (11) angle.

Scrapers.—Fig. 10 (4), (5).

Implements from Upper Middle Zone.

Points.—Fig. 13 (4), geometric and trimming irregular; (6), (7), (8) fragmentary; (9), (17).

Knives.—Fig. 7 (12), (20), Fig. 8 (12), Fig. 12 (21), Fig. 13 (16), (18), (19), (20), (22), (23), (24) all microlithic; (26), (27), very thin and neatly trimmed; (28) to (30), microlithic; (32), (35), (36).

Burins.—Fig. 9 (14), (15) to (21), Tardenoisian burins; (23), (24), (25). Fig. 10 (15), a scraper burin. Fig. 13 (10), a modified form of burin; (14), (15), angle burins; (31).

Scrapers.—Fig. 10 (11), (13), (14), Fig. 13 (25), of black chert and the only implement made in that material.

Evidence from the Pin Hole Cave.

The cave known locally as the Pin Hole is the one in which discoveries were first made by the Rev. J. M. Mello, about 1873, which ultimately led to the examination of the whole series of caves in co-operation with Dawkins.

After Mello's preliminary examination it appears to have remained untouched, probably because the published account of his work conveys the general impression that the cave was completely excavated. An examination in September, 1924, proved, however, that Mello's work was confined to the first 23 feet, and that nearly 60 yards of the cave remains unexplored. Careful reading of the published account confirms this.

Work is now in progress there and has already yielded valuable scientific results which not only assist in unravelling the intricate story of Creswell's occupation in Palæolithic times, but provide definite evidence for the precise dating of one phase of the occupation and its correlation with French cave sites; also considerable data in proof of occupation in Lower Palæolithic times and of the presence of both Lower and Upper Mousterian Man.

The excavations are still in an early stage and will form the subject of a comprehensive report later, but, in view of the importance of the evidence obtained in its bearing upon the placing of the Mother Grundy's Parlour culture, a brief survey of the results to date is desirable.

Four definite layers of stratification are present, consisting of an upper and lower cave-earth, a layer of stalagmite, or brecciated earth, and a thin stratum of recent accumulation.

The lower yellow cave-earth is 6 to 7 feet thick, the upper red cave-earth and stones 2 feet 6 inches thick and comparable respectively with Layers 2 and 3 (Fig. 4) of

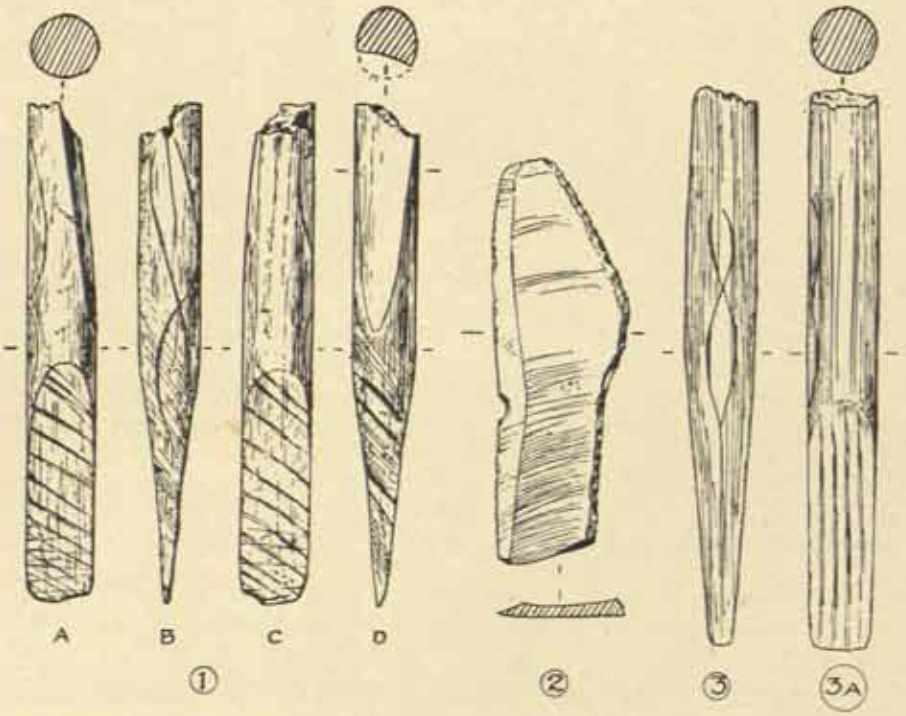


Fig. 14.—(1), A, B, C, D, engraved point in mammoth ivory, from the Pin Hole Cave. (2), shouldered flint point, ditto. (3), (3A), engraved bone point from the cave of La Madeleine (Musée des Eyzies). (½.)

Mother Grundy's Parlour. The upper cave-earth is sealed beneath hard stalagmite, or brecciated earth, 4 to 7 inches thick.

Quartzite implements, identified by M. l'Abbé Breuil as Mousterian, occur in the top 6 inches of the lower cave-earth and appear to be contemporary with those from the corresponding level of the Parlour site. The lowest depth at which indications of man's presence have so far been obtained is at 6 feet, and they consist of hand axes of quartzite, probably Acheulean in date.

Near the base of the upper red cave-earth a few flint implements have been found, including a point of fine workmanship, identified by M. l'Abbé Breuil and by

Professor Kozlowski, as proto-Solutrean. This can be correlated at the Parlour site with Fig. 11 (6), and with several implements recovered in the earlier excavations from the Church Hole Cave, notably the fine Solutrean blade in the Manchester Museum, Fig. 18 (9).

Flint flakes and implements are most numerous in the upper cave-earth in and under the stalagmite, down to a depth of 15 inches. In type and general character of retouch they closely resemble those from the Base Zone of the Parlour site, particularly a shouldered point (Fig. 14 (2)), which is a close parallel of Fig. 6 (3),

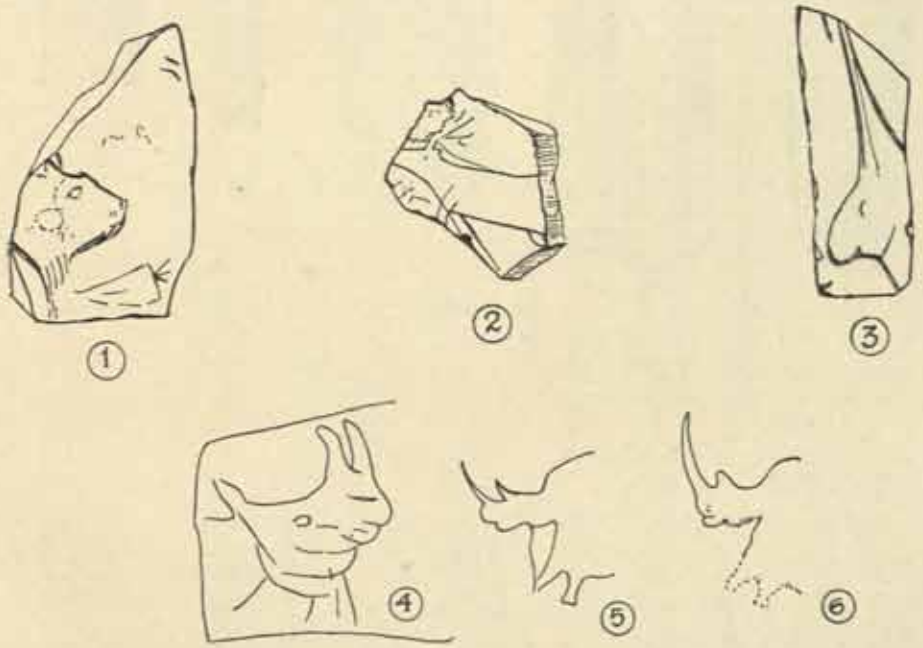


Fig. 15.—Engraved fragments of bone.—(1) bison, (2) reindeer, (3) rhinoceros (½), (4) to (6) engravings of rhinoceros' heads from French caves for comparison with (3) ((4) from Lourdes, (5) and (6) Font-de-Gaume. (*Répertoire de l'Art Quaternaire*, pp. 20 and 129.))

the retouching being so precisely similar that they might be the work of the same hand.

This shouldered point was found upon the same level and in close proximity to an engraved double bevel lance point of mammoth ivory, an implement not hitherto recorded in this country (Fig. 14 (1), A, B, C, D). It is of classic Magdalenian type, 65 mm. in length, cylindrical in section and 9 mm. in diameter. The faces of the double bevels are engraved with clean cut oblique lines. Cuts are also visible upon the sides of the bevelled end. The point of the implement, which is broken, has

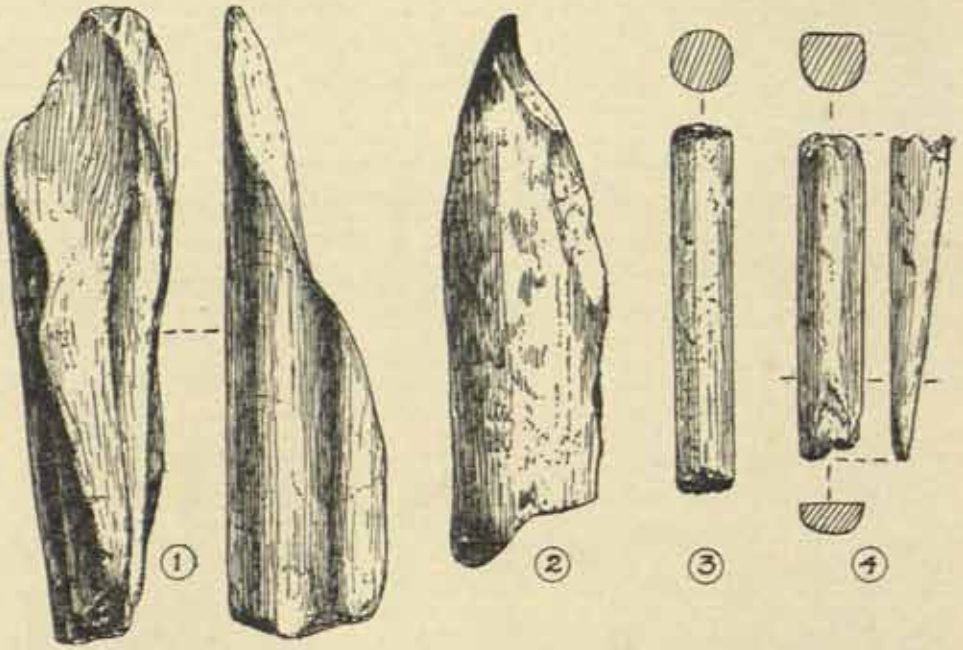


FIG. 16.

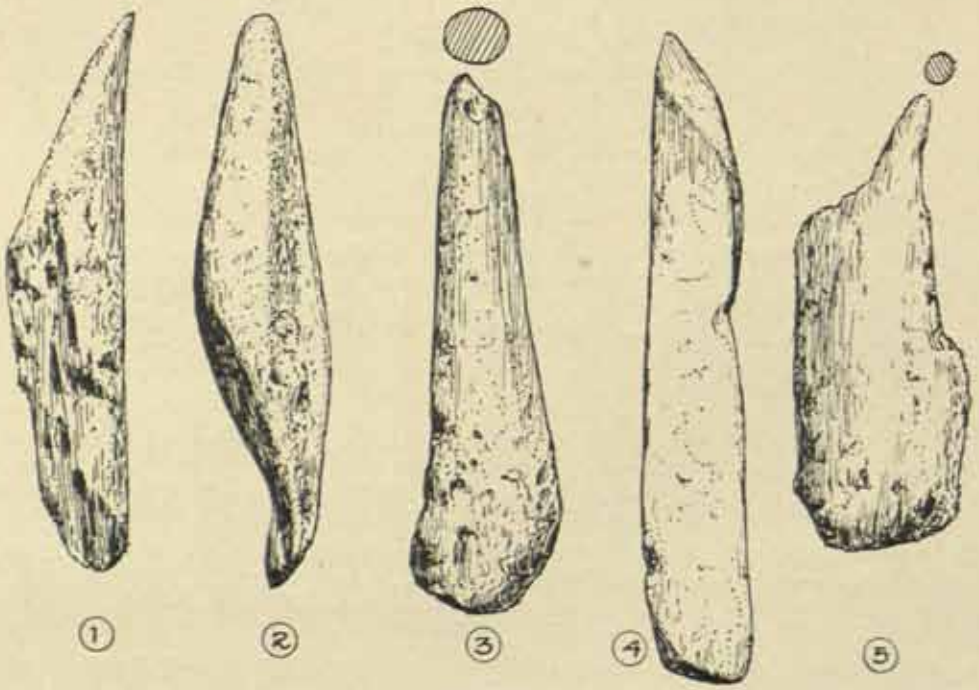


FIG. 17.

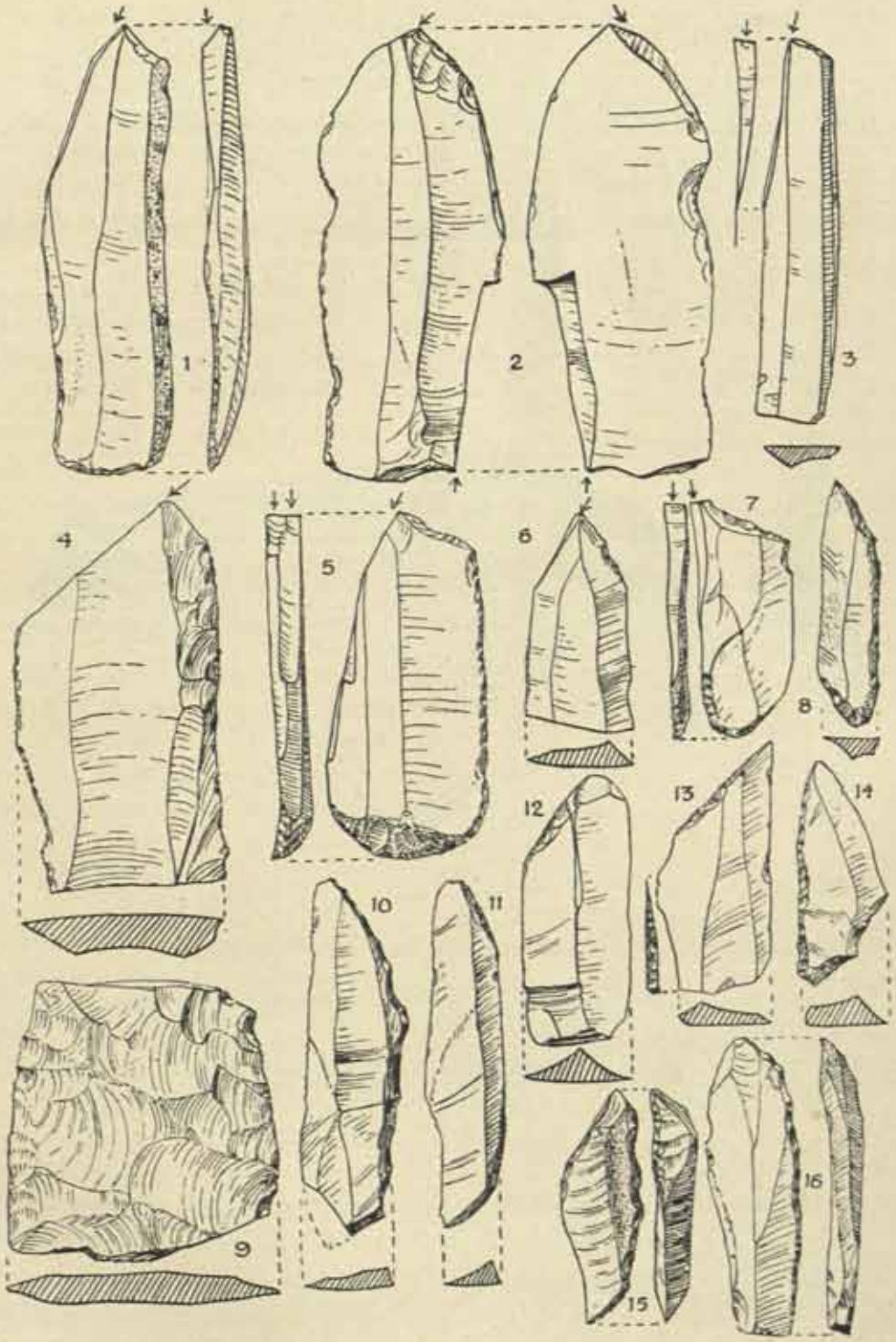


FIG. 18.—IMPLEMENTS FROM THE 1874–1879 EXCAVATIONS, MANCHESTER MUSEUM. (½)

a single shallow concave bevel upon one face and in this respect resembles the lance in Reindeer Antler from the Church Hole Cave,[1] now in the British Museum.

The opposite face of the implement is engraved with a conventional pattern (Fig. 14 (1) B) known as the "Poissons stylisés," and is a close parallel, both in this respect and in its general character, with an unpublished point from the cave of La Madeleine itself, which, by the courtesy of Dr. L. Capitan, I am permitted to figure for the first time (Fig. 14 (3) and (3A)). This occurred together with bi-serial harpoons and is referable to Magdalenian 5–6.

The fauna of the Pin Hole Cave agrees with that of Mother Grundy's Parlour, but is more abundant on account of the occupation of the cave by carnivorous animals. The presence of reindeer is very marked in the upper cave-earth. Rhinoceros, Hyæna, Bear and Horse are present throughout. Mammoth is fairly frequent.

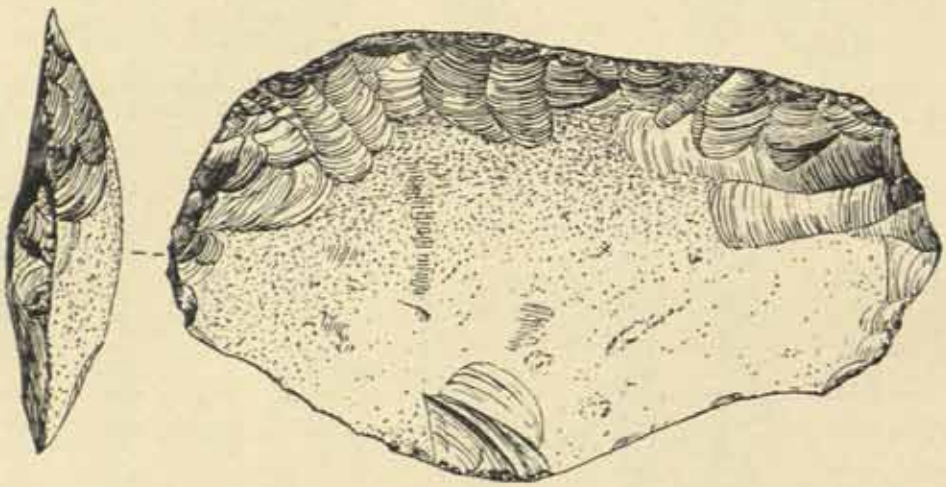


FIG. 19. (½)

Conclusions.

The placing of the Creswell culture presents many difficulties, but due weight should be given to the following facts.

In view of the recent discoveries in the Pin Hole Cave the presence of Magdalenian culture at Creswell is now undeniable. Indications less definitely assignable to that horizon are noticeable in the implements from Robin Hood's Cave and the Church Hole (Fig. 18 (5)), but we have with these no precise information as to the level at which the individual implements occurred, or with which of the remainder of the series they were associated. The indications are scanty and, in the absence of stratigraphical information, purely typological.

The discovery in the Pin Hole of the engraved double bevel lance point (Fig. 14 (1)), which Dr. Capitan and M. l'Abbé Breuil assign to Magdalenian 5 or 6,

[1] *Q.J.G.S.*, 1877, Fig. 7, p. 603.

is therefore in many respects the most important discovery so far made at Creswell, and the most valuable for the purpose of dating.

That it is of classic Magdalenian design and technique and not merely a survival, is conceded by all who have seen it.

The shouldered point (Fig. 14 (2)) found in close proximity to the ivory point can, I am informed, also be paralleled by unpublished examples from La Madeleine,[1] although the type is one generally considered to be typical of the Upper Aurignacian.

This implement and the ivory point unquestionably belong to the same period of occupation, and, taken together, they indicate a practically contemporary date for La Madeleine and that particular level of the Pin Hole.

As already pointed out, shouldered points so precisely similar in type and technique that they might have been the work of the same individual are characteristic of the Base level of the Mother Grundy's Parlour series (Fig. 6 (3), etc., and Fig. 14 (2)).

This fact, I suggest, gives us a definite comparison in point of *time* for La Madeleine and that phase of the Creswell culture.

Taking the Parlour series as a whole the basis of the culture is late Aurignacian and, apart from the shouldered points—which appear to be common to Aurignacian and Magdalenian deposits—there are no definite Magdalenian influences recognisable. In view of the Pin Hole evidence, however, the period of the Base level occupation appears to be contemporary in *time* with the later Magdalenian of France.

With this the faunal evidence agrees.

With the exception of Kents Cavern, the known examples of classic Magdalenian culture are scarce throughout this country, but the culture is unmistakably present here.

It is possible that the scanty evidences at Creswell are attributable to the presence of hunting parties on unusually extended hunting expeditions, due perhaps to abnormal climatic conditions causing the seasonal migrations of game to be abnormal also, or favouring their pursuit further to the north.

This view is supported by the fact, as regards Creswell, that the occupation of the caves was periodic and not constant. The scarcity of defined layers of occupation in the Pin Hole demonstrates this—only two have been encountered and these only of very limited area.

The abundance of bones split by man and afterwards gnawed by hyænas, and the intermingling of artifacts and charcoal with the débris typical of a den of carnivorous animals, points to the same conclusion.

The geographical position of Creswell and the proximity of areas still under glaciation, was no doubt a factor which favoured seasonal, rather than constant, occupation.

[1] Upon seeing this implement, however, M. l'Abbé Breuil stated that the examples at La Madeleine differ considerably in technique.

These considerations must have influenced, probably profoundly influenced, the development of Upper Palæolithic cultures in England as a whole, and it is scarcely reasonable to expect in any one period of time a close similarity in type of implements and technique, between English and Continental sites of contemporary date. Close parallels are not found to-day in the ordinary implements of life, agriculture, etc., even in adjacent countries, or in colonies of British people abroad, despite commercial enterprise and mechanical production. Therefore why look for close parallels in Palæolithic times?

In the light of present evidence the explanation of Creswell appears to be a mixture of cultures, the predominant and basic one being Aurignacian, with intrusive Solutrean and Magdalenian elements due to the presence there of occasional hunting parties possessed of that culture.

Man must have lived here in Britain throughout Upper Palæolithic times just as his forerunners did under more severe climatic conditions, and the evidence points to these people having preserved the Aurignacian tradition and that it continued predominant, despite sporadic intrusions, until displaced by the Azilio-Tardenoisian of the Early Transition period.

This is very strikingly shown in the gradual development of the implements recovered from Mother Grundy's Parlour.

The Base level of this deposit appears to be contemporary in *time* with the period of Magdalenian 5—6 of France, but preserves the basic Aurignacian characteristics. A gradual development is noticeable between the Base and the Upper Middle Zones until, finally, definite Azilio-Tardenoisian types are found to be present.

In conclusion, I suggest that the Mother Grundy's Parlour site is Magdalenian in age, Aurignacian in technique, and that it demonstrates a development of Upper Palæolithic culture in England, possibly a local development, which, whether we term it "Developed Aurignacian" or "Provincial Magdalenian," may, as further evidence accumulates, prove to be typical of the country as a whole.

Implements in Manchester Museum.

By the courtesy of Dr. G. H. Carpenter, keeper of the Manchester Museum, I am privileged to figure (Fig. 16) for comparison a series of unpublished implements found in the original Creswell excavations, including the Solutrean leaf-shaped blade (Fig. 16 (9)) and the Magdalenian grattoir-burin (Fig. 16 (5)), two important implements which support the conclusions arrived at herein relative to these cultures, based upon the evidence obtained from the Pin Hole and Mother Grundy's Parlour.

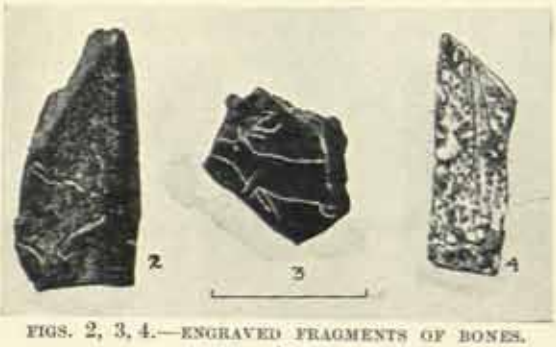
Fig. 16 (1) to (7) are typical burins. The following comparisons are made with the remainder:—

Fig. 16 (8) with Fig. 7 (15); Fig. 16 (12), (13) with Fig. 13 (3).

Fig. 16 (14) with Fig. 7 (1); Fig. 16 (10) with the modified shouldered points such as Fig. 6 (14), (17); Fig. 16 (11) with Fig. 6 (10); Fig. 16 (15) with Fig. 7 (4); and Fig. 16 (16) with Fig. 13 (17).



FIG. 1.—THE CRESWELL RAVINE, LOOKING EAST. POSITION OF MOTHER GRUNDY'S PARLOUR INDICATED BY THE ARROW.



FIGS. 2, 3, 4.—ENGRAVED FRAGMENTS OF BONES. (LINE = 1 INCH.)



FIG. 5.—ENGRAVED LANCE-POINT, PIN-HOLE CAVE. (LINE = 1 INCH.)



FIG. 7.—TYPICAL FRAGMENTS OF SPLIT BONE, FROM THE HEARTH.



FIG. 6.—SECTION OF THE BASE HEARTH. THE FLANKING STONES INDICATED BY X X.

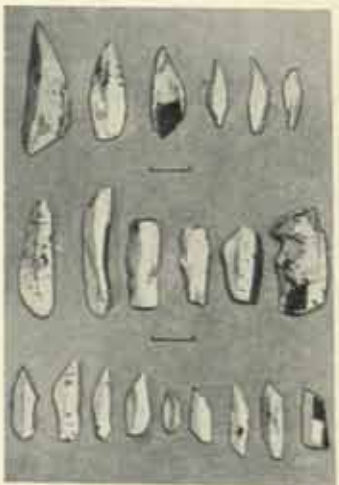


FIG. 8.—GROUP OF IMPLEMENTS SHOWING THEIR PATINATION. (LINES = 1 INCH.)

EXCAVATIONS AT MOTHER GRUNDY'S PARLOUR, CRESWELL CRAGS, DERBYSHIRE.

Fig. 17 represents an exceptionally large scraper, or knife, exhibiting Proto-Solutrean technique, found in Robin Hood's Cave in 1887, and now in the collection of W. F. Jackson, Esq., of Dore, near Sheffield, who has kindly permitted me to figure it. Nothing is known as to the level from which it was taken.

Report on the Charcoal Found.

Dr. T. W. Woodhead, M.Sc., F.L.S., of Huddersfield, has prepared sections and carefully examined the few fragments of charcoal recovered from the Base and Lower Middle Zones. He reports that the whole of these are Birch and that he could find no trace of Pine.

Sincere thanks are tendered to His Grace the Duke of Portland for permission to carry out these excavations and to his Agent and Estate Officials for their courtesy and assistance throughout. Also to Mr. G. A. Garfitt, F.S.A., Secretary of the Cave Committee, for his unfailing help throughout and much practical assistance in the excavation work; Miss D. A. Garrod, for the drawing from which Fig. 14 (3) was prepared, and her help in the identification of the ivory point, examining the artifacts, &c.; Mr. J. W. Jackson, M.Sc., for examining the animal remains and shells; Dr. T. W. Woodhead, F.L.S., for examining the charcoal; M. l'Abbé H. Breuil, Mr. Miles C. Burkitt, F.S.A., and Mr. Reginald Smith, F.S.A., who have examined the artifacts.

Abbreviations.

Q.J.G.S.	...	*Quarterly Journal, Geological Society.*
P.S.E.A.	...	*Prehistoric Society of East Anglia, Proceedings.*
R.A.	...	*Revue Anthropologique.*
S.A.B.	...	*Société d'Anthropologie de Brussels, Proceedings.*
C.I.D.	...	*Congrès International d'Anthropologie et d'Archéologie Préhistoriques.*
U.B.S.S.	...	*University of Bristol Spelæological Society, Proceedings.*

REPORT ON THE ANIMAL REMAINS FOUND AT THE CAVE KNOWN AS MOTHER GRUNDY'S PARLOUR, CRESWELL.

By J. Wilfrid Jackson, M.Sc., F.G.S., *Manchester Museum.*

The following report deals with the animal remains found with the flint artifacts described above by Mr. A. Leslie Armstrong, M.C., F.S.A. The remains are few in number and consist of several species of mammalia and of mollusca. The various bones and teeth differ somewhat in mineralisation.

The mammalia represented are Mammoth, Rhinoceros, Hyæna, Lion, Wolf, Fox, Bear, Bison (? Bos), Reindeer, Red-deer, and Horse, the last being the most abundant. In addition there is a solitary human tooth, and many land shells.

The remains occurred mainly in the basal portion of the section (*see* Fig. 4) around the hearth. The Horse and Bison (? Bos) were scattered through the whole layer; but there was a concentration of bone-fragments of these two animals at the Base with Reindeer antlers and Hyæna teeth. There are no signs of gnawing on any of the bones.

List of Species.

Mammalia.

Mammoth.—Two fragments of tusks represent this animal. They come from the Base of the section.

Rhinoceros.—One foot bone (a phalange) and one milk tooth (a molar), belong to this animal. The phalange has some red sandy cave-earth adhering to its surface and is from the Base. The milk molar came from the Lower Middle.

Hyæna.—The cave Hyæna is represented by six loose teeth, one of which, a third upper incisor, is stained black. All came from the Base and Lower Middle, chiefly around the hearth.

Lion.—A cervical vertebra, from the Base, agrees with a similar example found in the adjacent Robin Hood Cave during the 1875 diggings. The bone is very old-looking and has lost one of its articular surfaces. The ascription of the bone to Lion is probably correct, as it differs materially from a corresponding bone of Bear.

Wolf.—This animal is represented by a lumbar vertebra, which agrees with similar bones from Windy Knoll, near Castleton, and elsewhere.

Fox.—A fragment of the lower jaw is referable to the Common Fox.

Bear.—A solitary toe bone seems to belong to this animal.

Bison (or Bos).—This animal is represented by broken bones and loose teeth (young and old). Three of the teeth (two molars and a premolar) look much older than the others: they are more highly mineralised, and have red sandy cave-earth in their basal cavities.

Reindeer.—Several young antlers of this animal are present from the basal portion of the section, around the hearth. The species is also represented by an astragalus partly coated with red sandy cave-earth. The race to which these remains belong is not discernible from the imperfect material, but the adult antlers met with in the early diggings at the Creswell Caves (now in the Manchester Museum) seem to indicate the smaller Barren-ground type and not the Woodland form.[1]

Red-deer.—The Stag is represented by an imperfect lower jaw with four teeth, a lower premolar tooth, an upper molar with red sandy cave-earth in the cavities (as in the Bison teeth above), an astragalus, and a scapho-cuboid also with red sandy matrix. This animal is not listed by Professor (now Sir) William Boyd Dawkins from the Pleistocene beds of the Creswell Caves, though he records its presence in the surface-soil and disturbed red sandy cave-earth at Mother Grundy's Parlour, Robin Hood, and Church Hole.[2] It can now be added as undoubtedly Pleistocene.

Horse.—Several bone-fragments and numerous lower and upper molars and premolars, also incisors, belong to the horse. The teeth are all adult and mostly well worn. The molars and premolars have the long pillars characteristic of the "forest" type or Solutré horse (*Equus robustus*) of Ewart.[3] In this respect they agree with the large collection of horse-teeth obtained from the Creswell Caves during the diggings of 1875–6, and now in the Manchester Museum. The metacarpals associated with the latter confirm the reference to the "forest" or coarse-limbed race: they are all short and broad, the length of four perfect examples is only 5·8 times the width at the middle of the shaft.

Man.—Among the many animal remains there is a single human upper canine. Its presence here is curious. It will be recalled that during the exploration of Chamber B of Mother Grundy's Parlour in 1876, a human skull was met with in the red sandy cave-earth which filled the chamber to the roof. It occurred in a small recess in the wall, at a depth of 2 feet 9 inches from the surface, which was in contact with the roof. Above it, and close to it, were the vertebra of a Bison and a quartzite splinter, and there were no obvious evidences of disturbance around it. In spite of this, the skull was thought to be, in all probability, of later date than the associated Pleistocene remains, and was assigned to Neolithic or later times. Other human remains occurred in disturbed red sand in Chamber A of the same cave, and are likewise regarded as

[1] *See* R. F. Scharff, *The History of the European Fauna*, London, 1899, pp. 150–151, Figs. 10 and 11. The Creswell form is also represented in the Manchester Museum by an antler from the Pleistocene river-gravels at Wolvercote, Oxford.

[2] *Quart. Journ. Geol. Soc.*, vol. 33, 1877, pp. 601 and 605; vol. 35, 1879, p. 732.

[3] *Proc. Roy. Soc.*, Edinburgh, vol. xxx, part iv, 1910, p. 304, Fig. 23.

of later date.[1] In the light of present knowledge, it seems possible that the Chamber B skull, at least, might belong to an Aurignacian burial. There is, however, to be considered the question of the intimacy of the relation of the skull to the deposit in which it was found.

Mollusca.

The molluscan remains fall into three groups: A, Base of section; B, Middle and Upper Middle; and C, Surface layer. The species are not numerous and consist of the following:—*Limax maximus* (Linn.), A, 1 shield. *Vitrea crystallina* (Müll.), A, 1 example. *Polita cellaria* (Müll.), A, 1 example. *Goniodiscus rotundatus* (Müll.), A, 1 example. *Helicigona lapicida* (Linn.), A, 3 examples; B, 2 examples. *Arianta arbustorum* (Linn.), A, 1 example. *Helix nemoralis* (Linn.), A, several; B, several; C, 6 examples. *Helix hortensis* (Müll.), A, several, all dwarfs and apparently bandless. *Cochlicopa lubrica* (Müll.), A, 1 tip. Several calcareous eggs of *Helix* or *Vitrea* spp. also occurred in A.

For comparison with the above, a number of recent species were collected from the neighbourhood of the cave. These comprise *Vitrea crystallina*, *Polita cellaria*, *P. nitidula* (Müll.), *Goniodiscus rotundatus*, *Helicigona lapicida*, *Helix aspersa* (Müll.), *H. nemoralis*, *Vallonia costata* (Müll.), and *Cochlicopa lubrica*.

The only noteworthy form in the recent fauna is *H. aspersa*, a species recorded sparingly from the Late Pleistocene cave-deposits of Chudleigh, Devonshire, and Aveline's Hole, Burrington Combe, Somerset.[2]

The fossil species are too few to base conclusions upon with regard to climate.

[1] *See* W. Boyd Dawkins, *Quart. Journ. Geol. Soc.*, vol. xxxv, 1879, pp. 727 and 731, 732.

[2] A. S. Kennard and B. B. Woodward, *Proc. Spelæol. Society*, Bristol, vol. ii, No. 1 (1922–3), 1924, pp. 32, 33.

ON THE CALVARIA FOUND AT BOSKOP, TRANSVAAL, IN 1913, AND ITS RELATIONSHIP TO CROMAGNARD AND NEGROID SKULLS.

By W. P. Pycraft, Fell. Roy. Anthrop. Inst., F.Z.S., F.L.S.

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When I undertook the examination and preparation of a report on the calvaria discovered in 1913 in the Potchefstroom District of the Transvaal, I little suspected how difficult, and in many respects unsatisfactory, my task would be.

To begin with, I found that these remains had already formed the subject of an able memoir by Dr. S. H. Haughton, the Assistant Director of the South African Museum. Dr. Haughton's descriptions and measurements I have, as the auditors say, "examined and found correct," so much so that it seems to me no useful purpose would be served by again recording the same details. It is only on some matters of interpretation, arising out of our attempts to restore the skull, that I venture to differ from him.

For the sake of those who have not seen the original description, or cannot obtain ready access thereto, it will be well to give the essential features of these remains before proceeding to discuss the conclusions to which Dr. Haughton and others, including myself, have come.

These remains, then, consist of a calvaria, a temporal, and a fragment of a mandible, all in a highly mineralized condition, and found in a field, bordering on the River Mooi, 6 feet 6 inches from the surface.

The calvaria shows evidence of distortion, though not to a serious extent, along the left side. On the right side, fortunately, a tongue-shaped fragment of the parietal has been salved. I say fortunately advisedly, because this fragment shows traces of the sutural surface for the articulation of the temporal, and therefore furnishes a clue of first-rate importance in determining the auricular height of the skull.

As Dr. Haughton points out, this skull had a conspicuously narrow forehead, the maximum frontal diameter not exceeding 120 mm.; the maximum parietal diameter, on the other hand, was exceptionally great, though *post-mortem* distortion, by a slight crushing in of the left side, has made it difficult to determine the actual breadth of this region. Mr. Haughton's estimate is "probably 154 mm." I venture to think, however, that this is rather an over-estimate, and am inclined to regard 150 mm. as nearer the mark; but even then the difference between us is not great.

Norma verticalis.—This conforms fairly well, and this is significant, with Sergi's "*Beloides Ægyptiacus.*" In the narrow frontal, the great breadth of the parietal

region, and the presence of a conspicuous median parietal groove, the roof of this skull agrees, in a very marked degree, with skulls of Guanches and Bushmen, and of many ancient Egyptians; but it is much longer than any of these that I have seen.

Norma facialis.—The supra-orbital region is represented only on the right side, where the external angular process is preserved almost entirely, only the outermost angle being missing. But although no more than the outer segment of the orbital margin has been preserved, enough of the frontal remains to show that the supra-orbital ridges were feebly developed: they were, indeed, quite in keeping with the slender external angular process. The area of the orbital region which has been preserved extends, approximately, from the external angular process inwards as far as the supra-orbital notch. There is nothing, then, even remotely "Neanderthaloid" about the frontal region of the skull. Paired and very slightly developed frontal eminences are present, but they are very inconspicuous.

Norma lateralis.—This shows a markedly high and straight forehead, passing backward into a conspicuously flattened roof. At a point immediately behind a vertical line rising up from the centre of the *meatus auditorius*, and at right angles to the *meato-nasion* line—used here to supersede the less exact, but conventional "Frankfort line"—the curve of the roof takes a downward and backward course, to form a long, gentle slope, as far as a point answering, as nearly as possible, to the upper limit of the lambda. Here the slope bends slightly upon itself, but still continues backwards as far as a point well below the upper limit of the fossæ for the cerebellar lobes, which are to be found on the inner aspect of the calvaria. At this point the calvaria ends abruptly. There are no external sutural landmarks.

In the peculiarities of this skull so far outlined, Dr. Haughton sees a strong likeness to the "Cromagnon" skull, and there can be no escape from his conclusion, more particularly in regard to the contour-line of the sagittal section. The median parietal groove Dr. Haughton regards as negroid. "This feature of the skull," he remarks, "is not paralleled by any skull in the possession of the South African Museum, although, according to M. Boule, it has been seen in some negro skulls, and also upon a Namaqua skull now in the Paris Museum." But this feature, it is important to notice, is a characteristic of Bushman skulls, and I have found it in many skulls of ancient Egyptians, as well as in Guanches.

Dr. Haughton makes no special mention of the absence of the sutures in this calvaria, but so completely have these disappeared that I have found it impossible to determine, with certainty, the position either of the bregma or the lambda, and this fact has added to the difficulty of determining the meatal (auricular) height.

The Endocranial Surface.

The endocranial surface is remarkable rather for its negative than its positive characters, all its sutures having become obliterated, though a fairly deep groove

marks the position of the coronal suture. The characteristic depressions for the lodgment of pacchionian bodies are wanting, and the sulci for the meningeal vessels are but feebly developed. But there is one really striking feature about this surface. This is the surprisingly large size of the *crista frontalis*, which projects backwards for a distance of 52 mm. So far I have found a like development only in skulls of Bushmen and of Ancient Egyptians. It forms the median partition between two well-marked fossæ for the frontal lobes of the cerebrum, and of these the right is conspicuously the larger. The horizontal plate of the frontal is wanting.

The Temporal.

The peripheral area of this bone is unfortunately greatly damaged. The alisphenoidal and parietal borders, including the posterior half of the *pars mastoidea*, are missing.

The area of the *linea temporalis*, usually referred to as the *supra-mastoid ridge*, at once arrests attention on account of its unusual prominence. Over the *meatus auditorius externus* it forms a prominent, widely overhanging, sharp-edged shelf, the free edge of which sweeps up, and backwards, in the form of a well-marked swollen ridge. The ultimate history of this ridge is lost, owing to the fact that the superior and posterior borders of the *pars mastoidea* have been broken off.

The strong development of the *supra-mastoid ridge* is sometimes cited as the mark of the negro and as a characteristic of a degraded type of skull. But this is by no means true. It may be found almost, if not quite, as much developed in modern British skulls, but, of course, exceptionally.

Immediately beneath this ridge, and behind the *meatus auditorius externus*, lies an unusually wide, and relatively deep, semicircular depression, passing downwards, forwards, and inwards into the *meatus auditorius externus*. The mastoid process which is conspicuously "set out," away from the skull, is very small, and has a quite peculiar, and deeply incised, posterior border. Behind this border lies an exceptionally large and deep *digastric fossa*. In its superficial area I have found it slightly exceeded in a Tasmanian skull, but in this case the fossa was shallower, and much more constricted below.

The *supra-mastoid ridge* takes its origin from the base of the zygoma. To this point a return is necessitated for the purpose of discussing the glenoid cavity. This is bounded in front by the anterior root of the zygoma, forming the *eminentia articularis*. It is clear that this, in the Boskop skull, was rather feebly developed. Its lateral extension, from the skull-wall outwards, was slight. The point occupied by the "tubercle of the zygoma" has been destroyed, but there is evidence that it could not have been strongly developed. The articular surface is inconspicuous, and shelves insensibly backwards into the shallow glenoid cavity. No more than a faint trace remains of the glenoid fissure; and the post-glenoid process, though damaged, was evidently never large. The *tympanic plate* has been

almost completely broken away. From what traces are left it would seem that the cavity for the parotid gland, which is lodged in this plate, was unusually deep.

In the development of the *supra-mastoid ridge*, the *eminentia articularis*, and the glenoid cavity, the Boskop skull approaches very closely to that of the Bushman.

The inferior surface has been extensively damaged and its landmarks obliterated. There is no sign of the *styloid process* or the *stylo-mastoid foramen*. The tympanic plate has been destroyed, and with it the inferior border of the meatus. Of the carotid foramen there is no trace, while of the jugular fossa no more remains than a slight notch at the bottom of the *sinus lateralis*. The thickness of the mastoid immediately behind this is unusually great.

Turning now to the cerebral surface of the temporal, it is to be noted that the squamous area—the periphery of which is mostly missing—occupied a rather larger area within the skull than is the case with the average modern skull, owing to its more forward extension in the direction of the alisphenoid border.

The impressions, normally present, corresponding to the convolutions and sulci of the temporal lobe, and the grooves for the lodgment of the meningeal vessels, are by no means strongly marked. In these particulars again the Boskop resembles the Bushman skull.

The *petrous portion*, as has already been mentioned, is much damaged. Its apex has been broken off immediately in front of the *meatus auditorius internus*, which seems to have been a conspicuously large aperture. The *aqueductus vestibuli* is obscured by the matrix, and is almost completely filled up. The *hiatus canalis facialis* has been completely obliterated.

The eminence of the superior semicircular canal is but feebly developed, and the mastoid portion of the lateral sinus is very shallow. The *foramen mastoideum* is well preserved. The *tegmen tympani*, it is worth noting, presents a tolerably large perforation, due to pathological conditions, though these do not seem to have affected the *antrum tympanici*—at least so far as can be seen without further exploration. A similar imperfection of the wall of the *tegmen tympani* is occasionally met with in modern human crania. That this perforation is indeed pathological, and not due to *post-mortem* damage, is also the opinion of Sir Arthur Keith, to whom I submitted this bone.

The Restoration of the Skull and the Deductions Based Thereon.

The reconstruction of this skull, from the fragments just described, was accomplished by finding the position of the temporal in relation to the calvaria. After this the contour, shown in the restoration below, was plotted out. This having been done, it was possible to estimate, not only the probable form of the skull when entire, but also its cranial capacity. Dr. Haughton (9) believes this to have been as much as 1,832 c.c., but this, I venture to think, is too high; about 1,700 c.c.

would seem to be nearer the mark. Professor C. Elliot Smith and Dr. Broom, however, go so far as to contend that this skull had a capacity of as much as 1,900 c.c. To these figues, however, a return must be made presently.

Its probable contour, in *norma lateralis*, is shown in Fig. 1.

It will be noticed that this is orientated on the nasio-auricular base-line which I proposed in 1916, in place of the "Frankfort line," the only merit of which appears to be, according to its champions, that the skull thus surveyed places the face in the position in which it is held during life! No account is taken of the fact that by this usage half the face is above and half below the line, nor of the still more cogent objection that the facial angle measured by such a line is absolutely useless.

Placed, then, on the nasio-auricular base-line, practically the whole cranium lies above it and the whole face below it, so that the facial angle taken therefrom

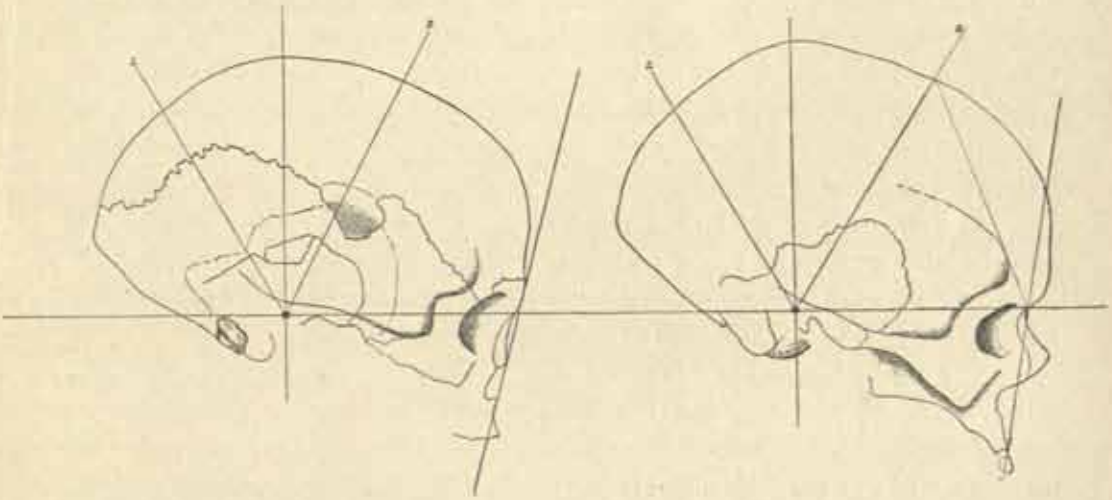


FIG. 1.—BOSKOP (RESTORATION). FIG. 2.—CROMAGNON (THE "OLD MAN").

affords an accurate measure of the rotation of the facial upon the cranial portion of the skull, following on the reduction in the size of the jaws. But this matter I have already discussed in detail elsewhere.

A certain amount of error in my restoration may well have to be allowed for, yet, I venture to think, it may be taken as approximately correct, since there are a number of relatively fixed points which can be safely relied upon for guidance, and which can be used as checks by all my critics.

One of these was furnished by the parietal fragment bearing a portion of the squamous suture for the temporal. Estimating the probable height, maximum and minimum, of the superior border of the temporal above the meatus, one gets the first test as to the probable meatal, or auricular, height of the skull. If the meato-nasion length is unduly shortened, then the supra-occipital would have to be excessively lengthened, in order to obtain a normal *foramen magnum*; on the other hand,

too long a meato-nasion line would entail the reduction of the supra-occipital beyond possible limits. Again, too long a meato-nasion line would demand a quite abnormally wide alisphenoid to close the gap in front of the temporal.

Bearing these crucial points in mind, we arrive at the following measurements :— L., 205 ; B., 150. Auricular height, 125 mm. ; basi-bregma height, 137 mm. The basi-bregma height can only be approximately determined. But this is a relatively unimportant point, because, in the first place, it can be calculated in the case of skulls where the basi-occipital is missing with tolerable accuracy by adding, say, 15 mm. to the auricular height.

It is at present the almost universal practice to regard the basion as a fixed point whereby much otherwise valuable craniometrical work is vitiated. In the report already referred to (16), I was able to show that the basion, so far from being "fixed," is really an extremely variable point, the distance between this and the meatal centre varying between 5 mm. on the one hand, and 20 mm. on the other. Hence the discrepancies to which I drew attention in calculating the alveolar index by Flower's method. The average meato-basion distance appears to be 15 mm., but the Bushman and Strandlooper skulls seem to have a rather shallower base, the average being 12 mm.

The difference between Dr. Haughton's calculations and my own in regard to the length, breadth, and height are negligible, and they do not effect what, after all, is one of the most important considerations in regard to this skull—to wit, the place among the Hominidæ which is to be assigned to the Boskop Man.

The cranial capacity of this restoration, as derived from a formula given me by Dr. W. L. H. Duckworth, "Capacity = L. × W. × Bb. Ht. × 000385 + 96," is 1,717 c.c.

As a test of the reliability of this formula, I calculated thereby the cranial capacity of a number of skulls whose measurements are given in the "Catalogue of Osteological Specimens of the Royal College of Surgeons, Part I, Man": comparing the results with the cranial capacity as given in the catalogue determined by measurement with shot. The differences between the c.c. yielded by the formula and those yielded by measurement with shot were negligible.

I made several attempts at the restoration of this skull, varying the length of the nasio-meatal line as well as the meatal or auricular height. Where this last amounted to as much as 130 mm., with an estimated basi-bregma height of 142 mm., the cranial capacity rose to as much as 1,777 c.c. Having regard to all the circumstances the lesser auricular height—125 mm., with a basi-bregma height of 137 mm.—seems the more reasonable, and the more probable, and it was for this reason adopted. My maximum height, it will be noticed, makes a close approximation in the matter of cranial capacity—1,777 c.c.—to that given by Dr. Haughton, the difference being no more than 55 c.c. It seems to me, however, that my lower figure, 1,717c.c., is the more probable.

Satisfied, after many experiments, that this restoration was at least approximately correct, there remained the task of discovery as to which of the African races, or species, this calvaria belonged, or whether, indeed, its affinities were African.

Its likeness to the Bushman skull, in all its salient features could not be gainsaid: but it soon became apparent that it must further be studied in relation to the "Strandloopers" on the one hand, and the Cromagnards on the other. These likenesses, and the conclusions based thereon, will now be enlarged upon.

Before entering on this theme, however, it would be well to dispose of the many references which have been made by other writers on this subject to the "negroid" characters of these remains.

Little more than vague and nebulous suggestions have been advanced in support of this "negroid" element. The "evidence" offered is discounted by the fact

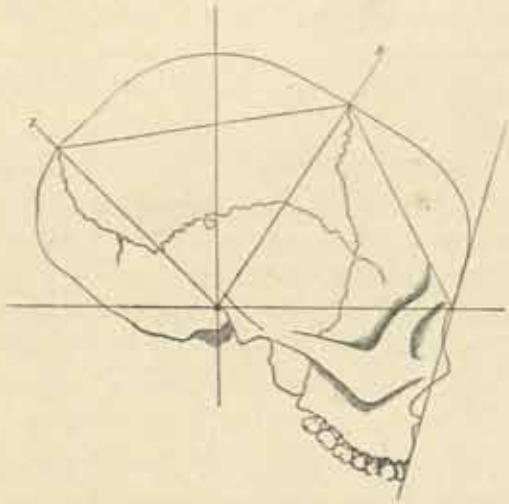


FIG. 3.—STRANDLOOPER (AFTER SHRUBSALL).

that we are still very much "at sea" as to what, precisely, are the cranial characters which can be regarded as positively "negroid."

Certain it is that, all too commonly, what are regarded as "negro" skulls are, as often as not, the skulls of Bantu, masked by an infusion of Bushman blood.

In what relation the Bushman stands to the negro is a matter calling for investigation, but it would seem that they should be regarded as divergent branches of a common stem, a relationship expressed in the accompanying "Phylogenetic Tree" (Fig. 12). If this surmise be correct, the suggested "negroid" characters are sufficiently explained.

The importance of the part the Bushman has played as a modifying factor in the physical features of the various races of Africa, living and extinct, is by no means generally realized. That in remote times he ranged as far north as Egypt there is

scarcely room for doubt. Any large series of skulls of ancient Egyptians will contain a number which bear indubitable evidence of an infusion of Bushman blood. In the Anthropological collection of the British Museum of Natural History is a mandible, embedded in tufa, taken from "the tomb of Cleopatra," which is an undoubted Bushman jaw. And quite recently a cave containing characteristic Bushman paintings was discovered by Mr. F. J. Bagshawe at Kisana, Tanganyika Territory, the work of the Kangeju Bushmen.

The evidence of this Bushman element, in skulls of Ancient Egyptians—but not apparently present in Predynastic skulls—is found in the conspicuous parietal "bosses," the well-marked median furrow in the parietal above the lambda, and often in the face—features which are to be seen also in the Guanches.

It may be urged that this agreement between certain Egyptian, and Bushman skulls, or between Bantu-Bushman skulls, is a matter of coincidence rather than

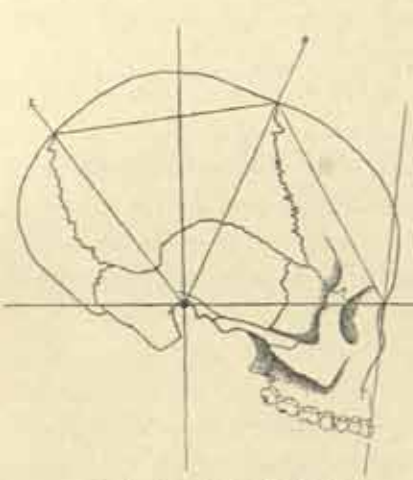


FIG. 4.—TYPICAL BUSHMAN.

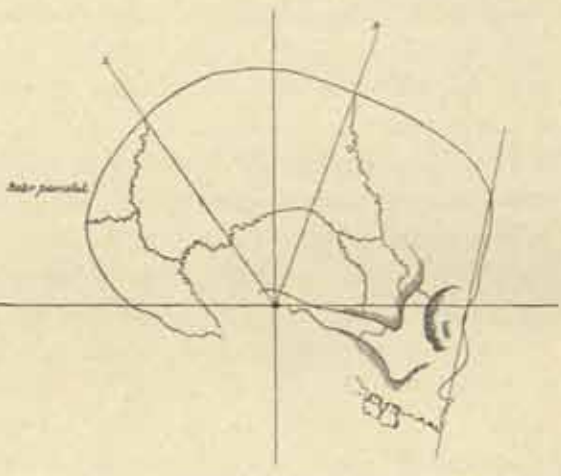


FIG. 5.—BUSHMAN FROM CAVES OF TSITZIKAMA.

evidence of racial intermixture. It would not, indeed, be easy to prove this blending. But I was able, some years ago, in a Report on a collection of skulls from New Guinea (16), to show that there was evidence, amounting to proof, that though invading, and invaded, races might eventually settle down together, the invading race, if sufficiently distinct, left indelible traces of its sojourn in the changes wrought in the skull-characters of the willing or unwilling hosts.

The Tasmanians, referred to in the Report just mentioned, will furnish a case in point; for they have left unmistakable evidence of their slow progress through New Guinea, and many of the Pacific Islands, and across Australia, from north to south, to their final resting-place in Tasmania. The evidence as to this migration is to be found in the impress of their skull-characters which are, to the anthropologist, unmistakable.

The Polynesians, no less certainly, I ventured to contend in that Report, left witness of their passage through New Guinea into Polynesia, and beyond, as far west as Oregon, as is shown in the skulls of the ancient and the skulls of La Tigra and Arkansas.[1] There can be no mistaking the evidence, for the Polynesian skull displays very definite and peculiar characters, which occur nowhere else, though this fact is by no means generally recognized. They were first described in my Report alluded to above.

But in the course of this migration, the Polynesians, in turn, paid tribute in a loss of racial purity. For the Maori, commonly regarded as typical and pure-blooded Polynesians, display a no less unmistakable record of what we may call "cranial deformation," as a result of their residence among, and interbreeding with, alien peoples. I need not, however, labour this point; the facts, as I have stated them, are easily verifiable, and they are to be borne in mind by all who essay to unravel not only the many puzzling aspects of this fragment of a skull of the Boskop man, but all skulls. We are too apt to assume that we are dealing always with "pure-bred" races.

From what has just been said the inference is obvious, that the skull of the Bushman, upon which such stress is laid, is also "an impure dominant." It is to be borne in mind that, for countless generations, this one of the aboriginal races of Africa has lived under conditions which can only be expressed by some harsher term than "adverse." As a consequence, he has degenerated mentally and physically. There is no evidence to show that he ever attained to a high stature, and it is clear that force of circumstances, willingly or unwillingly undergone, occasioned an intermixture of alien blood which would inevitably affect stature. This intermixture may be gathered from an examination of the series of skulls which have been secured, owing to the zeal and prescience of Mr. FitzSimons, from the Caves of Tsitzikama. Six of these he sent me for examination, though only three were adults. But while these are all of undoubted Bushman, they vary widely in their characteristics, even allowing for sexual differences. All are small. In one of these, with a cranial index of 78, the conspicuous interparietal width is marked by the relatively great inter-stephanic width. The face is remarkably "flat," the nasals of extreme breadth, while the orbits are microsemic. It is essentially a Bushman skull, but contains a large strain of an alien element, possibly derived from Angola. But these differences are precisely similar to those already described by Shrubsall (17-19), Poch (14), Duckworth (5), and others.

Between the Bushman and the Strandlooper, no sharply-defined line can be drawn. Moreover, even among the Strandloopers, in regard to the skull, there was a wide diversity as well as a common agreement.

[1] It is somewhat remarkable that the singular character of the "Polynesian" type of skull, and its remarkable range, should so far have eluded the attention of Anthropologists, but there can be no escape from the evidence which I have produced.

The accompanying contour (Fig. 3) was made from what seems to me one of the most typical Strandlooper skulls yet figured. It is an enlargement made from Shrubsall's photograph (18) by means of proportional compasses, set to give an auricular height of 116 mm. This gives a skull length of 203 mm. which is practically the same as that of the Boskop skull.

On comparing the contours of these two—Strandlooper and Boskop—an extraordinarily close likeness will be found between them, which can hardly be ascribed to coincidence (Fig. 7). The contours are almost identical, save only in the greater auricular height of the Boskop skull. On the assumption made here, that the Strandlooper holds an intermediate, and degenerating, stage between the Boskop man and the Bushman, this result is what we should expect.

I would lay particular stress on the fact that my restoration was made many months before I made the enlarged contour of the Shrubsall skull, so that there was no sub-conscious attempt to make the one fit the other. When the Shrubsall skull was enlarged on the basis of a skull-length of 181 mm.—the actual length of this skull—the auricular height was no more than 100 mm., so that it would seem that the auricular height does not rise in exact sympathy with the increase in length. But this by the way. Shrubsall does not give the auricular height of this skull, but from his table of average measurements it probably did not exceed 116 mm. The superimposed contours of the Boskop skull, and the Bushman, again bear out the Bushman affinities of this skull, and, moreover, when the superimposed contours of the Shrubsall Strandlooper, and the Bushman, are compared, a close likeness between the two is manifest.

It is contended in these pages that the Boskop man is genetically related to the Cromagnards. This relationship will be discussed presently. As a preliminary, the superimposed contours of the typical "Cromagnon" and the Boskop skull may profitably be compared.

Before proceeding further it would be expedient to take account of some "Boskop Remains" described in *Nature* (3) by Professor Raymond Dart. He lays particular emphasis on the fragments of a skull which bears a very close likeness to that which forms the subject of this Report. These fragments, he insists, are, in all essentials, in agreement with those of the original Boskop skull. The supra-occipital is almost complete, in so far as the right side is concerned, and it happily shows, very clearly, the lambdoid suture, of which no trace is to be found in the original Boskop skull. What is even more important is the fact that the left side of the skull affords us the opportunity of seeing the posterior portion of the temporal in relation to the parietal, and the greater part of the upper region of the face.

Professor Dart gives a "rough preliminary reconstruction of this skull, built up on a cast of the endocranial cavity." The result of this preliminary work yields a skull having a maximal length of 210 mm. and a "maximal breadth of 150 mm." "If this length be correctly determined," he remarks, "we are in the presence of

the longest-headed human skull yet discovered." With no more than a photograph of this restoration before me it is difficult to criticize this result. Yet I venture to suggest that when Professor Dart comes to revise his work he will agree that his original computation, as to the length of this skull, must be reduced, probably by as much as 5 mm. If the frontal region of the skull, as shown in this reconstruction, were rotated so as to give the face an angle of, say, 77°, the whole contour would be changed, and this change, be it noted, would bring the restoration into complete harmony with the Boskop, Cromagnon, Strandlooper, and Bushman skulls. This is a significant fact. The accompanying outlines will demonstrate my contention. Additional testimony as to the harmony between the original Boskop skull and that described by Professor Dart, is shown by the fact that he finds the same conspicuous parietal

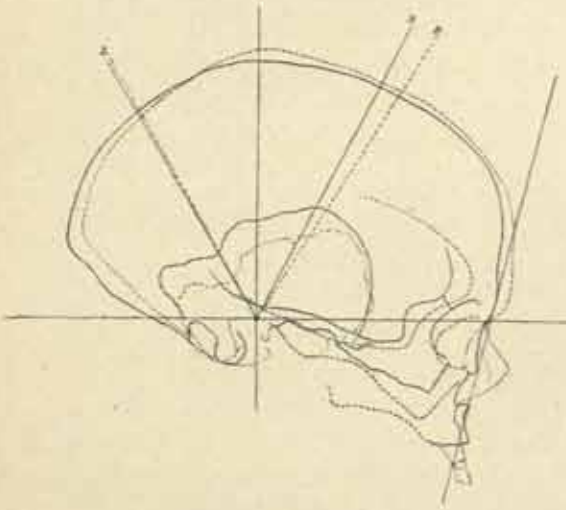


FIG. 6.—CONTINUOUS LINE—BOSKOP.
DOTTED LINE—CROMAGNON.

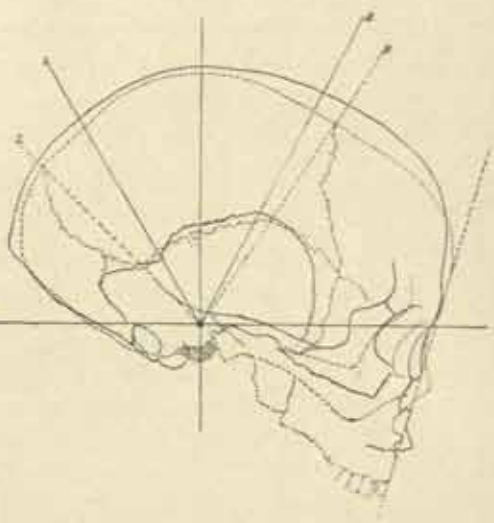


FIG. 7.—CONTINUOUS LINE—BOSKOP.
DOTTED LINE—STRANDLOOPER.

"bosses," the same interparietal sulcus on the roof of the skull, and the same conspicuously small mastoids.

And now as touching the likeness between the Boskop skull and that of the "typical" Cromagnon. A comparison between the superimposed contours of these two reveals a most striking and significant agreement (Fig. 6). Using nasio-meatal base line, and using the nasion, for the moment, as the point of superposition, the forehead of the Boskop skull shows a slight hollowing at the vertex—determined by the nasio-meatal base-line—and is perhaps 5 mm. less in auricular height, while the inferior portion of the occipital region projects further, and is deeper.

The two skulls differ, however, in a very striking manner when the *meatus auditorius* is used as a fixed point for comparison. The superimposed contours then show that the meato-nasion length of the Cromagnon exceeds that of the Boskop

skull by somewhere about 10 mm., while it shows a loss of a similar amount in the post-auricular region, lying between the obelion and the inion. The auricular height of the Boskop skull, it is contended, was probably about 125 mm. as against 130 mm. in the Cromagnard. But though the Cromagnon skull displays distinct parietal

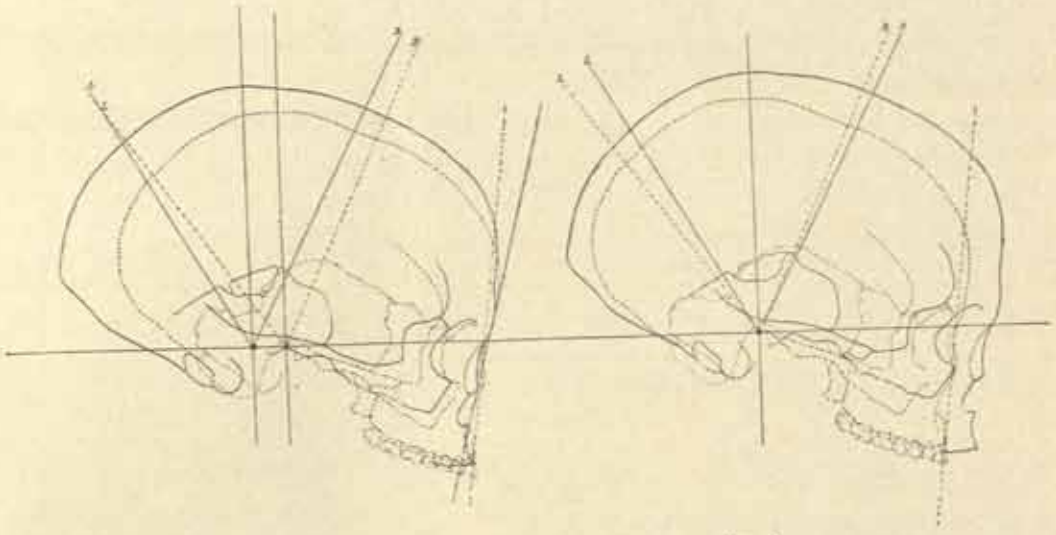


Fig. 8. Fig. 9.

CONTINUOUS LINE BOSKOP. DOTTED LINE—BUSHMAN (TYPICAL).
IN FIG. 8, THE FIXED POINT IS THE *meatus auditorius*; IN FIG. 9, THE *nasion*.

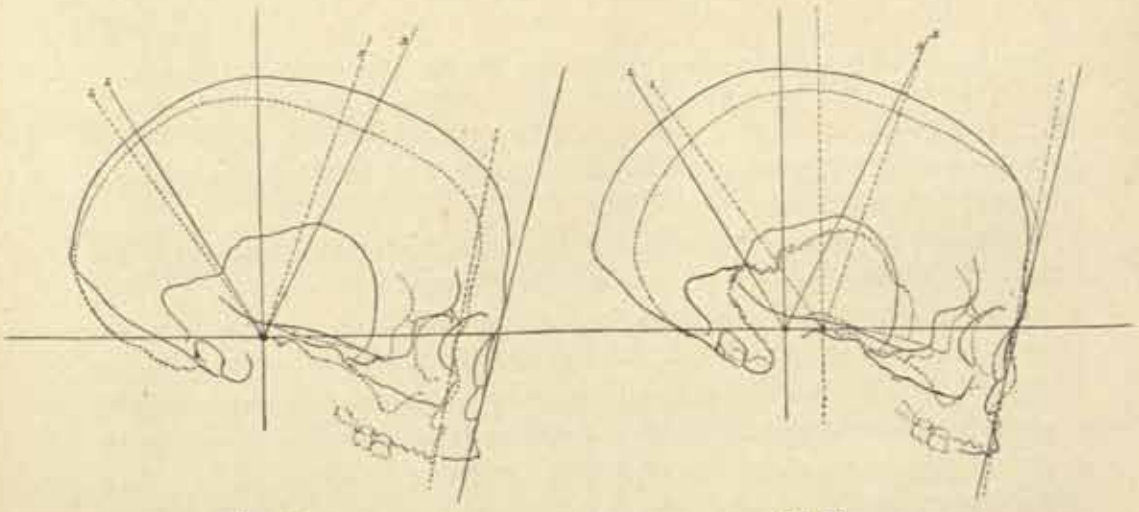


Fig. 10. Fig. 11.

CONTINUOUS LINE—BOSKOP. DOTTED LINE—NO. 4 BUSHMAN (TSITZIKAMA).
IN FIG. 10, THE FIXED POINT IS THE *meatus auditorius*; IN FIG. 11, THE *nasion*.

"bosses," it did not display the median parietal sulcus. The mastoid differed conspicuously from that of the Boskop skull, but we have no evidence as to the size of the *crista frontalis*, so largely developed in the Boskop skull.

Professor Elliot Smith, on the evidence furnished by the endocranial cast, considers that the "flatness of the cast, and certain of its features suggest affinities of the Boskop man with the Neanderthal race. But the larger size, and especially the form, of the pre-frontal bulging indicates an even closer kinship with the peoples found in Europe in Aurignacian and later times.

"But it would be incorrect to regard the Boskop man as a member of either the Neanderthal or the Cromagnon races. For he represents a variety of mankind that never intruded into Europe—probably a divergent branch of the species *sapiens*, which sprang from the parent stock soon after its separation from the so-called species *neanderthalensis*. In confirmation of this suggestion is the fact that, though the pre-frontal area is larger than that of Neanderthal man, and has assumed the form distinctive of the modern type of man, it is smaller, both actually and relatively, than that of the Cromagnon race."

Conclusion.

A careful study of all the essential features of the skull of the Boskop man seems to show, very certainly, that he was a derivative of Cromagnon man, and the progenitor of the Bushman.

But before these relationships, and the sequel thereto, can be profitably considered, it is essential to define what is meant by the term "Cromagnon": for this, at present, is used in a very loose and confusing sense.

Too commonly, in short, it is employed on the one hand as a label for a Race, and on the other as a Time-scale, or a "Culture." Hence some more precise definition has become imperative. The need for such a definition has, indeed, been hinted at by others, and it has accordingly been proposed to substitute the term "Neanthropic." This, however, is inadmissible, since it was coined to serve another purpose, to wit, as a substitute for the time-worn "Neolithic."

When Lord Avebury coined the terms "Palæolithic," and "Neolithic," he shared the belief of his time, that the advent of Neolithic implements marked the coming of a new Race, and the demise of the old Mousterian man, who fashioned the "Palæoliths."

But it is now clear that this was not the case. Evidence has accumulated to show that three stages of the Palæolithic Period must be recognized—Lower, Middle and Upper. The Middle Palæolithic Period seems to mark the demise, or at least the decline, of Mousterian man. For it is now evident that the Upper Palæolithic ushers in the new era of human development, and the emergence of more than one new species.

The four distinct phases of culture in short—Aurignacian, Solutrean, Magdalenian, and Azilian—which are shown to have marked this Upper Palæolithic period, probably, or possibly, mark the earliest stages in the differentiation of the main trunks represented by modern man.

As a way out of the inevitable confusion of thought which a continuation of the use of the old nomenclature entails, Professor Elliot Smith (21) suggests the terms "Palæanthropic" and "Neanthropic." The first-named includes Mousterian man and his predecessors; the last, the new Adam and his descendants. Only by the acceptance of his proposal can we avoid ambiguity.

Clearly, then, we cannot substitute the term "Neanthropic" for "Cromagnon." Those who would have it so would but make confusion worse confounded. The Grimaldi people, for example, are regarded by some as aberrant Cromagnards.

Henceforth, there can be no question but that we must use the term "Cromagnon" in a strictly Zoological sense—as indicative of a Race, the type of which is "the Old Man of Cromagnon"; that is to say, the skull found in 1868, in a rock-shelter in the valley of the Vézère, at Cromagnon, a little above the village of Les Eyzies. He was the first of the Aurignacians known to us. Other skulls of this type were brought to light later, but, as is the rule with human skulls, no two are quite alike, which implies, that then, as now, no race was absolutely "pure-bred."

This particular skull, then, I designate as the type of the Cromagnon race. It may be distinguished by the following measurement:—Length, 205 mm.; breadth, 151 mm.; auricular height, 130 mm.; nasal height, 52 mm.; orbital height, 27 mm.; orbital width, 42 mm.; nasi-prosthion length, 70 mm.; bi-zygomatic width, 133 mm. The teeth are missing. Cranial capacity, 1,777 c.c.

So much, then, for the definition of the term "Cromagnon." A return may now be made to our main theme—the Neanthropic peoples. That the slowly differentiating races of this new era of human evolution occupied the same territory, or were near neighbours, of Neander-man, seems an inevitable conclusion; nor would there seem to be any escape from the further conclusion that a certain amount of interbreeding took place between them, thus providing the material for the development of new species, wherever isolation, from whatever cause, gave the new potentialities an opportunity to develop.

This much is indicated in the accompanying Phylogenetic tree (Fig. 12). Herein the Proto-Bushman—the Boskop man—is supposed to have arisen out of the Neanthropic "flux" which was to give rise, at about the same time, to the Grimaldi people, and the Cromagnards, the Australo-Dravidians, and Rhodesian man. The common stock from which these have all been derived was, it is here suggested, formed out of the smooth, and "beetle-browed" Palæanthropic peoples.

On this assumption the negroid and Cromagnard strains of the Proto-Bushman are intelligibly accounted for, the negroid element being derived from the nascent Grimaldi race.

From the typical Cromagnard are derived the Nordic, Alpine, Mediterranean, and Hindi "Races," which, it is here suggested, should be designated "Eu-Cromagnards," to afford an escape from the singularly inappropriate term "Caucasian."

The Polynesians and the Mongols are to be regarded as offshoots of the Cromagnard stem, but as older than the Eu-Cromagnards.

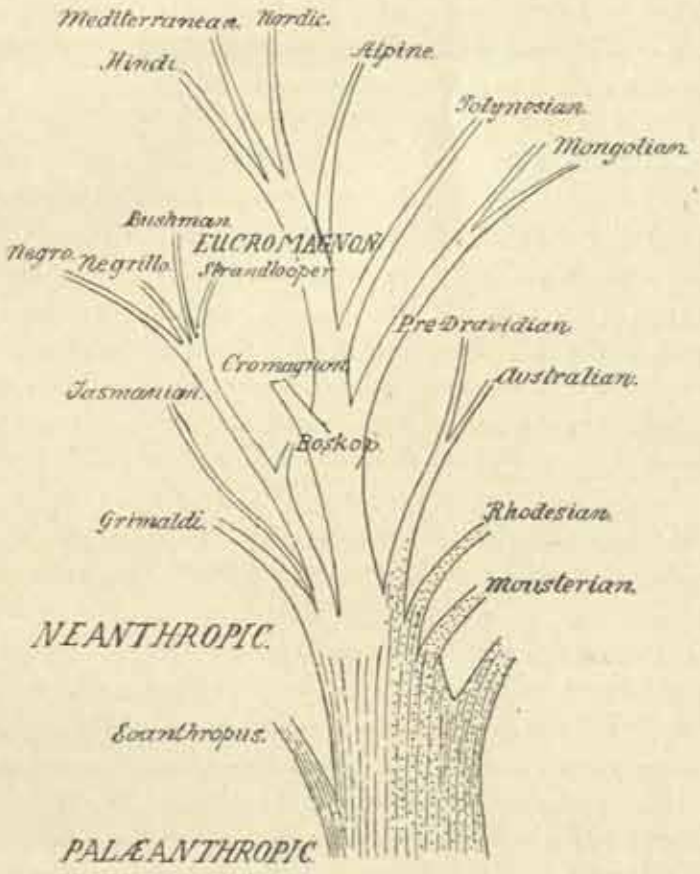


FIG. 12.—PHYLOGENETIC TREE SHOWING THE MAIN LINES OF DESCENT OF MODERN MAN.

The Australo-Dravidians and the Rhodesian man are apparently to be derived from this same Cromagnard stock, but they seem to show a conspicuous strain of Mousterian blood.

It would seem, in short, that we may fairly postulate the divergence of the human race, at a very early stage of its development, into two branches, one with relatively feeble, and the other with strongly developed brow-ridges: *Eoanthropus* stands for the one, *Pithecanthropus* and Neander-man for the other.

That the "beetle-browed" people were the dominant race—or races—for long ages, seems to be shown by the fact that all the skulls of the Lower and Middle

Palæanthropic Periods are of the Neander type. But the fact that they were preceded, in Europe, at any rate, by the smooth-browed people represented by Eoanthropus, suggests that these two types may have been living in close proximity throughout the whole of this long period, and furthermore, that interbreeding took place between them. In other words, the apparently somewhat sudden appearance of the Neanthropic peoples is probably fictitious, but what factors led to the rise and decline and final disappearance of the Mousterians yet remain to be discovered. The Australo-Dravidians and Rhodesian man, as has just been remarked, seem to be witnesses of a certain amount of interbreeding between the two, before the final extinction of the inferior type.

Finally, something must be said anent the interpretation which has been placed upon the significance of the excessive development of the brow-ridges of Neander man. It has been contended, in short, that these were to be attributed to the size and weight of the massive jaws, which in turn were necessitated by the nature of the food they had to disintegrate. The face, indeed, was supposed to have followed the model of that of the great apes. But the fact that the jaws of Eoanthropus were even more ape-like than those of Mousterian man, destroys the cogency of this argument. Moreover, the jaws of the Tasmanian were quite as large as those of Neander man, yet the cranium does not show conspicuous brow-ridges.

Mr. Hewett has suggested that the Boskop man should be regarded as a distinct species—*Homo capensis*. This is a perfectly legitimate proposal. But, if adopted, it will be necessary to designate the Strandlooper-Bushman type as a sub-species—*Homo capensis maritimus*. Similar distinctions must be made in the case of the Negro and Negrillo, which must become *Homo africanus* and *H. a. parvus*, and of the Tasmanian for whom I would propose the name *Homo tasmanensis*. Some authorities, indeed, contend that the living races of mankind are but "varieties" of one species—*Homo sapiens*. But this view is untenable, unless we brush aside the ordinary standards of classification which are of necessity applied to the lower orders of the mammalia, including the great apes.

But, be this as it may, the status of the Boskop-man seems now to have been established. The curiously evasive character of this skull, the difficulty which besets any attempt to determine its precise affinities, bear witness to its "generalized" character, which is a consequence of its derivation from an undifferentiated stock standing at the parting of the ways between two or three nascent stocks.

APPENDIX.

Some standard of racial characters, at least of the main types, must be formulated and adopted by anthropologists if we are to have any useful measure of comparison between them. On the whole such a standard would be of most value if based on the skull alone, since commonly this is the only material available. It is imperative, in short, if we are to make any progress, that we should adopt the method of the zoologist in our endeavours to define the various species and sub-species of Man.

At the present time anthropologists, by an overwhelming majority, recognize but one species —*Homo sapiens*—and several "Races," of Neanthropic man. But the more closely this convention is examined the more evident does it become that we must "go the whole hog," and form some precise definition of the "somatological units" of Denniker, and others, based on the cranial characters, as displayed in some selected and typical skull in the case of each of these "units."

The Cromagnon skull has already been described in these pages (p. 192). There remain, for the immediate purposes of this Report, the following to be described:—Bushman, Strandlooper, Negro, Tasmanian, Australian, and Polynesian.

Bushman (*Homo capensis steatopyga*).

The characteristic features of the Bushman's skull are the great parietal width, the median groove on the roof of the parietal region, and the brachydont and markedly bullate form of the molars.

Type skull: Coll. Mus. Brit. (Nat. Hist.); Reg. No. 98.4.29.1., "S. Africa."—L., 179; B., 136 (I. 75); Bb., 121 (H.I., 67); Bp., 100; Bn., 100 (A.I., 103). Mesaticephalic; Tapeinocephalic; Prognathous; Platyrrhine; Chamæprosopic; Phænozygous; Microsemic.

Strandlooper (*Homo capensis maritimus*).

Closely resembles Bushman, but markedly larger.

Negro (*Homo æthiopicus*).

Skull with parietal eminences well marked; a slight median parietal sulcus; frontal eminences moderate; megadont.

Type skull: Coll. Mus. Brit. (Nat. Hist.); Reg. No. 64.6.7.40; Du Chaillu Coll., "W. Africa."—B., 141; L., 186 (I., 75); Bb., 139 (I, 74); Bp., 103; Bn., 98 (I., 105); Nw., 27; Nh., 44 (I. 60); Np., 67; Bz., 120 (I., 55). Mesaticephalic; Metriocephalic; Prognathous; Platyrrhine; Letroprosopic; Phenozygous; Mesosemic.

Negrillo (*Homo æthiopicus parvus*).

Skull with parietal eminences; frontal eminences well developed; a marked median frontal ridge, extending from the forehead nearly to the coronal suture; palate long; mastoid small.

Type skull: Coll. Brit. Mus. (Nat. Hist.); Reg. No. 1.8.9.1.; Bambute, Congo Forest—B., 139; L., 178 (I., 78); Bb., 124 (I., 69); Bp., 99; Bn., 93 (I., 106; Fa., 81); Nw., 27; Nh., 46 (I., 58); P., 67; Bz., 124 (I., 54). Mesaticephalic; Tapeinocephalic; Prognathous; Platyrrhine; Leptoprosopic; Phenozygous; Microsemic.

Tasmanian (*Homo tasmanensis*).

Skull with a marked torus supra-orbitalis; parietal eminences conspicuous; parietals on either side of the middle line markedly concave; palate of great size; nasals short and wide.

Type skull: Coll. Mus. Brit. (Nat. Hist.); Reg. No. 1917.10.29.1.—B., 141; L., 191. (I., 73); Bb., 136 (I., 71); Bn., 100; Bp., 108 (I., 108); Nh., 47; Nw., 27 (I., 56). Dolichocephalic: Tapeinocephalic; Prognathous; Platyrrhine; Chamæprosopic; Phenozygous; Microsemic.

Australian (*Homo sapiens antiquus*).

Torus supra-orbitalis conspicuously developed; parietal region markedly scaphoid; parietal eminences fairly conspicuous; palate large, long, wide and deep; megadont.

Type skull: Coll. Mus. Brit. (Nat. Hist.); Reg. No. 83.9.29.1.—B., 134; L., 197 (I., 68); Bb., 139 (I., 70); Bp., 108; Bn., 198 (I., 100; Fa., 80); Nw., 24; Nh., 49 (I., 50).

Polynesian (*Homo sapiens sandvicensis*).

Well developed; roof of skull rising steeply from forehead to mid-parietal line and falling thence in a marked curve when seen in *norma lateralis*, on the auriculo-nasion base-line; the curve ending in a conspicuous supra-occipital protuberance; glabella well developed; parietal eminences well developed; orbits quadrangular.

Type skull: Coll. Mus. Brit. (Nat. Hist.); Reg. No. 89.4.4.1; Oahu.—B., 148; L., 187 (I., 79); Bb., 135 (I., 72); Bp., 100; Bn., 101 (I., 72); Nw., 25; Nh., 59 (I., 42); Np., 79; Bz., 137 (I., 57). Mesaticephalic; Metriocephalic; Mesognathous; Leptorrhine; Leptoprosopic; Phenozygous; Megasemic.

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Fig. 1.—Restoration of the Boskop Skull, in *norma lateralis*, and on the Meato-nasion base-line. Auricular height of 125 mm.

Fig. 2.—The skull of "the Old Man of Cromagnon," the cranial type of the Cromagnards, in *norma lateralis*. Auricular height of 130 mm.

Fig. 3.—The skull of the Strandlooper (after Shrubsall.) Auricular height of 115 mm.

Fig. 4.—Skull of the typical Bushman, in *norma lateralis*, Auricular height of 117 mm.

Fig. 5.—Skull of Bushman from Caves of Tsitzikama, in *norma lateralis*. Auricular height of 110 mm.

Fig. 6.—Superimposed contours of Boskop man and Cromagnon (dotted outline), the *meatus auditorius* being used as a fixed point.

Fig. 7.—Superimposed contours of Boskop and Strandlooper (dotted outline), the *meatus auditorius* being used as a fixed point.

Fig. 8.—Superimposed contours of Boskop and Bushman, the fixed point being the *meatus auditorius*.

Fig. 9.—Superimposed contours of Boskop man and Bushman, the fixed point being the *nasion*.

Fig. 10.—Superimposed contours of the Boskop man and a skull of Bushman type from the Caves of Tsitzikama. The fixed point being the *meatus auditorius*.

Fig. 11.—Superimposed contours of Boskop man and the skull shown in Fig. 10. The fixed point being the *nasion*.

Fig. 12.—Phylogenetic tree showing the main lines of descent of modern man.

BIBLIOGRAPHY.

1. Broom, R.—"A Contribution to the Craniology of the Yellow-Skinned Races of South Africa." *Jour. Roy. Anthro. Inst.*, vol. liii, 1923, p. 132.
2. —— "The Boskop Skull." *Amer. Mus. Nat. Hist.* (*Anthropological Papers*), 1920, vol. xii.
3. Dart, R.—"Boskop Remains from the South African Coast." *Nature*, Oct., 1923, p. 623.
4. Deniker, J.—*The Races of Man*, 1900.
5. Duckworth, W. L. H.—*Morphology and Anthropology*, 1904.
6. FitzSimons, F. W.—"Palæolithic Man in South Africa." *Nature*, 1915, p. 615.
7. —— "The Cliff-dwellers of Tsitzikama." *Illustrated London News*, Dec., 1921.
8. —— "Bushman of the Zuurberg." *S. Africa Jour. Sci.*, 1923.
9. Haughton, S. H.—"Preliminary Note on the Ancient Human Skull Remains from the Transvaal." *Trans. Roy. Soc. South Africa*, vol. vi, 1917–18.
10. Hewett, J.—"Notes Relating to the Aboriginal Tribes of the Eastern Provinces." *S. Africa Jour. Sci.*, vol. xvii, 1921.
11. Johnson, Sir H.—*Tribes of the Congo.*
12. Keith, Sir A.—*Antiquity of Man*, 1925.
13. —— "The Discovery of Fossil Remains of Man in Java, Australia, and South Africa." *Nature*, 1921, p. 603.
14. Poch, R.—"Untersuch. von Buschman-Schädeln aus Transvaal Mus." *Ann. Transvaal Mus.*, 1909.
15. Pycraft, W. P.—"A Plea for a Substitute for the Frankfort Base-line." *Man*, vol. xv, 1915.
16. —— "Report on Human Crania Collected by the British Ornithologists' Union in New Guinea." (London: Edwards & Co.), 1916.
17. Shrubsall, F. C.—*Crania of African Bush Races*, 1897.
18. —— "Note on Craniology of S.A. Bushmen." *Ann. S.A. Mus.*, vol. viii, 1911.
19. —— "Notes on some Bushmen Crania and Bones from the South African Museum, Cape Town." *Ann. S.A. Mus.*, vol. v, 1907.
20. —— "The Pygmy and Negro Races of Africa." Hunterian Lectures, 1908.
21. Smith, Elliot.—"The Endocranial Cast of the Boskop Skull." *Proc. Manchester Lit. and Phil. Soc.*, 1916–17, vol. lxi.

21a. —— "Note upon the Endocranial Cast obtained from the Ancient Calvaria found at Boskop, Transvaal." *Trans. Roy. Soc. South Africa*, vol. vi, 1917–18.

22. Smith, H. D.—"A Study of Pygmy Crania, based on Skulls found in Egypt." *Biometrika*, vol. viii, 1912.
23. Smith, S. A.—"The Fossil Skull found at Talgai, Queensland." *Trans. Roy. Soc. of London*, vol. 208, Series B, 1918.
24. Sollas, W. J.—"On the Cranial and Facial Characters of the Neanderthal Race." *Trans. Roy. Soc. of London*, vol. 199, Series B, 1908.
25. —— *Ancient Hunters*, 1924.
26. Stow.—*Native Races of South Africa*, 1910.
27. Theal, G. McCall.—*Ethnology and Conditions of South Africa before 1505*, 1919.
28. Woodward, Sir A.—"Guide to the Fossil Remains of M[illegible] *Geol. Brit. Mus.*, 1922.

CENTRAL ARCHAEOLOGICAL [illegible] New Delhi

THE EARLY NILOTIC, LIBYAN AND EGYPTIAN RELATIONS WITH MINOAN CRETE.

The Huxley Memorial Lecture for 1925.

By Sir Arthur Evans, D.Litt., F.R.S., Hon. V.P.S.A.

Crete is before all things the middle island of the East Mediterranean basin. From Homer's time onwards its central position has struck all who have had to deal with it. It might, indeed, be described as a "half-way house" between three continents —Europe, Asia and Africa. This fortunate situation marked it as the point where the primitive culture of our own Continent was first affected by that of the older civilizations of Egypt and the East, and it was thus that Minoan Crete rose to life and light at a time when primeval darkness still brooded over the wide mainland region to North and West.

That the most ancient geographical relations of the island lay with Anatolia and the East is equally clear. This, indeed, is itself largely an inheritance from late geological times when, with the inrush of the Miocene Sea and the formation of the South Ægean basin, Crete became a South-Western horn of Asia Minor, and was separated by a deep channel from what is now the South-Eastern foreland of Greece. This result was brought into further relief by the still greater submergence of Pleistocene times, to which the North Ægean basin was due. Nor was this fundamental relationship affected by the subsequent submergence of part of the land-bridge to the East, which still left a chain of intermediate islands—Kasos, Carpathos and Rhodes—to act as stepping-stones of early intercourse.

There seems to be no reasonable doubt that Man entered Crete from the Anatolian side. He may even on his first appearance have found still living the dwarf hippopotamus[1] of the earlier and far wider land-bridge. But Palæolithic discoveries in the island are still wanting. Even from pure Neolithic deposits human remains are still to seek. The evidence, moreover, now forthcoming from the early Minoan "tholos" ossuaries of Southern Crete, that dolichocephaly was betimes prevalent in the island, is itself indecisive, both owing to the wide distribution of the "Mediterranean" type, and on account of special considerations, stated below, affecting this particular class of early monuments. That by the Middle Minoan Age a distinct brachycephalic admixture is perceptible may well be due to the intrusion of

[1] The remains of the pigmy hippopotamus, which ranges to Sicily and Malta, were found by Miss Dorothea Bate on the plateau of Kathara in Eastern Crete. Sir William Boyd Dawkins has now recognized bones of dwarf hippopotamus (*Pentlandi*) amongst those associated with Galilean Man.

Von Luschan's Armenoids from Asia Minor,[1] for which the portrait on a Middle Minoan II seal[2] supplies a cogent argument. But so far as the evidence goes, there is no reason for believing that this was the earliest insular type.

Apart from this as yet uncertain factor, all the evidence at our disposal—archæological, religious and linguistic—points to a root connection between Crete and Anatolia. A good instance of this is supplied by the primitive family of steatopygous female images from the Neolithic strata of Knossos, which, as I have shown elsewhere,[3] find remarkable parallels not only in Asia Minor but as far afield as the Euphrates and the Caspian shores. Other relics, such as the stone maces, show similar affinities with this Eastern province. The monochrome, hand-polished pottery, at times incised and inlaid, of Neolithic Crete recurs on the same side, while its character presents on the other hand an abrupt contrast to the polychrome pottery of wide East European range which the most recent discoveries have shown to have extended not only over a large part of Northern Greece but to the remotest glens of the Morea. The contrast here presented finds a curious parallel in a phenomenon, ultimately due to the same physical causes, that zoologists have noted on the respective sides of the strait that divides Crete from the Greek side of the old rift. The land-snails and running beetles of the little island of Cerigotto, geologically dependent on Crete, like those of Crete itself, show a general affinity to those of Asia Minor, while the types found on the opposite island of Cerigo, the ancient Cythera, beyond the narrow channel, correspond with those of mainland Greece.[4]

The most deep-lying traditions of the early Cretan population, as far as it has been able to recover them, also connect themselves with the mainland to the East. The indigenous pre-Hellenic language, mainly preserved in names of persons and places, belongs to the same family as that of the old Carians and their kin; and it is impossible to doubt that, where such nomenclature extends to mainland Greece, its diffusion was the result of the Minoan Conquest, to which the Mycenæan civilization on that side was due. The names both of Minos and Knossos, to take significant examples, recur in the Cilician coast region; Karnessos, the earlier appellation of Lytthos, the model Dorian city of the later Greek colonists, has the same element as Halikarnassos. Throughout a large part of Anatolia, again, we recognize the cult of the same Great Mother with her male satellite—husband, lover or child, as the case may be—whose insular cult has been exposed in the Minoan shrines of Crete and whose memory survived in the Rhea and infant Zeus of Hellenic tradition. Of

[1] A summary of Dr. von Luschan's results is given in his "Huxley Lecture" for 1911.

[2] *See* my *Palace of Minos*, vol. i, p. 2, Fig. 2A.

[3] *Palace of Minos*, vol. i, p. 47 *seq.*

[4] This evidence is well summarized in R. F. Sharpe, *European Animals; their Geological history and Geographical distribution*, pp. 198, 199. The geographical conclusions resulting from the distribution of the snails was first pointed out by O. Böttger, "Die Binnenschnecken d. Griechischen Inseln Cerigo und Cerigotto" (*Nachrichtsblatt d. deutschen malakol. Gesellschaft*, vol. xxvi, 1894).

special importance, too, is the widespread recurrence on the Anatolian side of the worship of the sacred double axe or "labrys," from which, indeed, the name of "Labyrinth," as attached to the Palace of Minos, was almost certainly derived.

It has been necessary to bring into relief this fundamental connection of Crete itself and its earliest stock with Asia Minor in order to place in its proper perspective the southern relations with which I propose to deal on this occasion. That by way of the island "stepping-stones" some kind of intercourse existed with the Anatolian havens from the earliest time of human occupation onwards must be reasonably inferred. It was probably owing to some early drift along the Southern littoral of Asia Minor that there occur in the later Neolithic deposits of Knossos objects made of *Tridacna* shell, the nearest habitat of which is the Red Sea.[1] Further west, indeed, other evidences of the same primitive current of intercourse may be seen in exotic shells found in the Neolithic deposits of Italy, including the "mother-of-pearl" shell (*Meleagrina margaritifera*),[2] which does not at present live nearer than the Persian Gulf and Indian Ocean.

A priori we should naturally look to the Continent to the east for the routes by which objects as well as ideas of oriental origin reached early Crete. There has even been a tendency, partly, it would seem, suggested by the analogy of later Phœnician commerce, to suppose that the Egyptian relics found in connection with Minoan and Mycenæan remains arrived by the Syrian and Anatolian route. This may have been partially the case in the latest age of the civilization, when colonial foundations existed in Cyprus and probably also on the Cilician coast, but it is unsupported by any evidence so far as regards the earlier contact of Crete with the Nile Valley.

But, underlying this theory of intercourse with Egypt by the round-about coastal route along the sides of the easternmost Mediterranean angle, there has undoubtedly been the assumption that primitive man shrank from voyages across the open sea. The assumption is wholly ungrounded. At a very early stage in man's evolution we are encountered by the problem of his first appearance on the Australian Continent, and already, by the time of the transitional phase of culture that heralds the birth of the true Neolithic, considerable advance in seafaring knowledge seems to have been attained. As Sir Arthur Keith has pointed out, the Maglemose settlers in the island of Oronsay, off the West Coast of Scotland, would have had to cross a considerable stretch of what is often a stormy sea.[3] It is clear

[1] I may instance a worn pebble-like object, another uncertain fragment showing traces of the kings and an idol of neolithic type illustrated in my *Palace of Minos*, vol. i, p. 48, Figs. 13, 20 (there erroneously described as "alabaster").

[2] Strobel, *Bull. di Paletnologia*, vol. iii (1877), p. 56. For five specimens *Mitra oleacea* found in Ligurian Cave burials, *see* A. Issel, *ibid.*, vol. xiii (1887), p. 175.

[3] *The Antiquity of Man*, vol. i (1925 ed.), p. 112, "to reach the island even now a stretch of sea ten miles in width has to be crossed, but at the time the harpoon people settled on it . . . the sail must have been longer, for in Azilian times the island and the neighbouring mainland stood 30 feet deeper in the sea than at present."

that by the close of the Neolithic Age, neither the North Sea, nor the widest part of the English Channel nor the Bay of Biscay itself, were bars to direct maritime intercourse between the British Isles and the Scandinavian and North German regions on the one side, and the Iberic world on the other. What was successfully ventured at that early epoch in those open waters, exposed to the full fury of Atlantic and Arctic gales, must have been well within the capacity of the mariners of the Inland Sea. It is possible to go further than this and to affirm that the early Mediterranean seafarers preferred the open sea to the rounding of iron-bound headlands, or coasting along surf-beaten shores. In Crete, indeed, there is distinct evidence that their maritime goals stood in relation to overland transit routes by which dangerous promontories were avoided.

It is in itself natural to suppose that in the East Mediterranean basin navigation began to flourish in the Ægean island world. Neither the Syrian nor the Libyan Coast was favourable to its rise, though on the other hand the Nile supplied materials

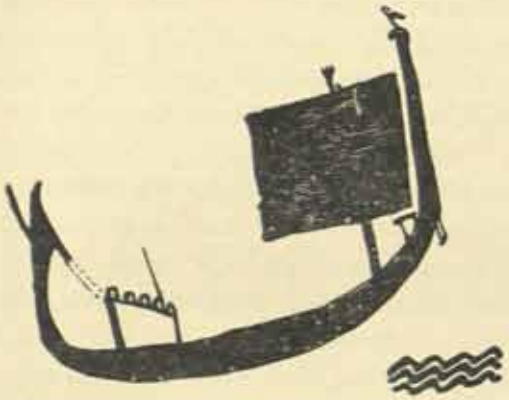


FIG. 1.—SAILING VESSEL ON ABYDOS POT.

for the growth of a simple form of river craft. The papyrus, however, of which the true Nilotic vessels were made, itself offered only limited scope for the construction of larger vessels and, owing to the absence of good timber on the banks of the river, the Egyptian ships of the early dynasties, though often otherwise of elaborate build, were literally built up of short planks[1] and, as may be seen from the monument of Sahurè of the Vth Dynasty (*c.* 2700 B.C.), still continued to be provided with ladder-like masts of two stems.

Recent researches have made it clear that in the last predynastic stage of Egyptian culture an exotic form of vessel began to intrude on the traditional Nilotic type, and there can be little doubt that by whatever channels this form reached the Nile, its original home was the Euphrates. Instead of the curving keels with two central cabins dividing the banks of oars and with prow and stern rising gradually from the water-level, such as we see, for instance, on the painted pots of Naqada

[1] *See*, for instance, A. Köster, *Das Antike Seewesen* (Berlin, 1923) p. 14, Fig. 1.

(*see* Fig. 2), and the well-known rock painting of Hierakonpolis, vessels now appear of quite a different character. These have level hulls with high, abruptly rising prows and recurved sterns, and show a single shelter somewhat behind their middle. On the ivory knife-handle of Gebel-el-'Arak, where unquestionable Sumerian elements are seen side by side with Nilotic, we actually witness a naval battle between ships of these two classes.[1] In connection with the new type of vessel that now enters on the scene we note indications of masts, and on a "decorated" pot from the Naqada Cemetery a broad square-cut sail (Fig. 1). The mast here, though short, is of a single piece. On a Ist Dynasty alabaster vase from Abydos we seem to trace a similar type of sailing-boat.[2]

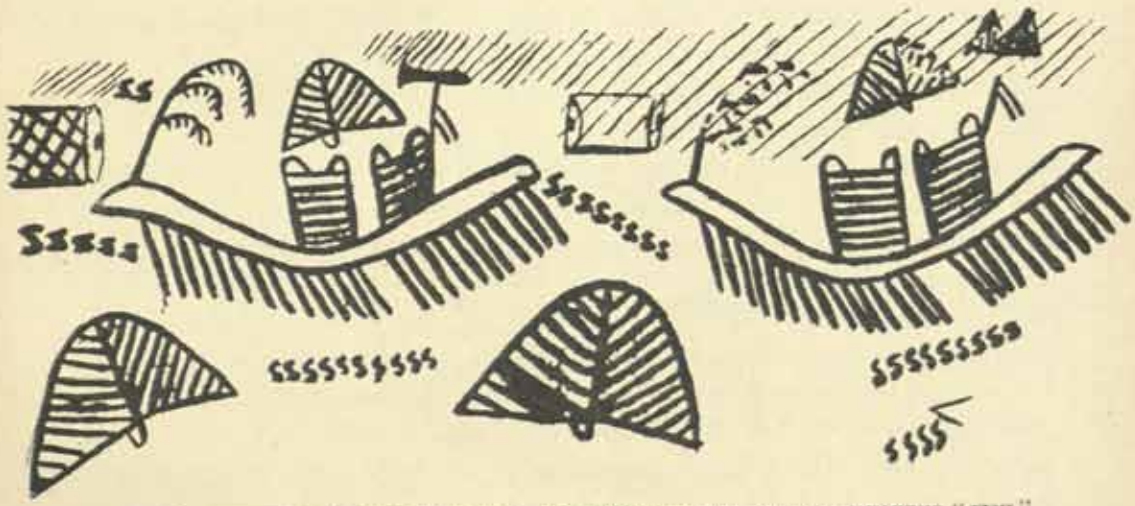


FIG. 2.—PREDYNASTIC ROWING GALLEYS ON DECORATED POT, NAQADA, SHOWING "FISH" AND "MOUNTAINS" ENSIGNS.

It is nevertheless clear that up to the close of the predynastic age—and, indeed, during the earlier historic phase of Egypt—sailing vessels had made very little way.

In the numerous representations of vessels on the "decorated" pots of late predynastic times from which Fig. 2[3] is taken, rowers in place of masts and sails are almost universal. At the same time the abundance of such galleys shows the great development of navigation on the Nile already before the days of Menes' conquest. Its ultimate goal, so far as the Nile itself was concerned, would have been A-ur,

[1] Bénédite, Fondation Piot, *Monuments et Mémoires*, xxii, Fasc. 1; Petrie, *Ancient Egypt*, 1917, p. 26 *seq.*, Figs. 1–4; H. Frankfort, *Studies in Ancient Pottery of the Near East*, p. 139 *seq.* (Roy. Anthr. Inst. Occasional Papers, No. 6, 1924), and Ch. Boreux, *Études de Nautique Égyptienne. I* (*Mémoires, etc.*, I, 1924). In the reliefs on this object Sumerian and early Nilotic elements meet, Gilgames is seen dompting two lions, and men appear wearing the "Libyan sheath."

[2] Petrie, *Abydos*, vol. ii, Pl. xii, 266.

[3] Petrie and Quibell, *Naqada and Ballas*, Pl. lxvi 4.

"the Great Door" or "Port" near the Canopic mouth, to the early importance of which Professor Newberry has called attention.[1]

Was the sea transport already in Ægean hands? Was there, perhaps, already some less grandiose predecessor of the mighty harbour works, since submerged, that abutted on the Isle of Pharos? The mapping out of the immense constructions, still visible beneath the sea surface, by the French engineer, M. Gaston Jondet,[2] has never received either the notice or the investigation that it deserves. The breakwater here, according to his measurements 2,000 metres in length, had supporting walls, formed of blocks, the upper surface of which was 8 to 12 metres wide, and the great basin, containing an area of about 150 acres, might "have sheltered 400 galleys or trirèmes of 30 metres length." Such constructions vie with those of the Pyramid builders. Is it, then, all a mirage? Ten years have passed and no attempt has been made to test these expert and very detailed observations.

Elsewhere[3] I have ventured to support the contention of M. Raymond Weil,[4] that these mighty harbour works imply at least the collaboration of naval engineers from Minoan Crete. From the date at least of the Vth Dynasty, as we know from the monument of Sahurè,[5] Egyptian vessels frequented the Syrian ports, and indeed there is now direct evidence of intercourse with Byblos going back to the First Dynasty, but of wider Mediterranean commerce we have no record. Are we, then, to regard these monumental works as dating from the days of Greek rule in Egypt? A passage in Josephus[6] has indeed been cited, referring to the Isle of Pharos being surrounded by strong sea walls against the violence of the waves. But what has this to do with the great mole and spacious basin of a harbour that must have been capable of accommodating all the fleets of the Mediterranean? Are we really to believe that what would have been even for Alexander his most colossal work has been passed over in silence by ancient writers?

Of Cretan vessels probably the earliest representation is a clay model of a boat with two benches, a high prow, and a tail-like projection at the stern from an ossuary at Palaikastro belonging to the First Early Minoan Period[7] (Fig. 3). The latter feature recurs on a series of incised figures of ships engraved on Cycladic pottery of

[1] "The Petty Kingdom of the Harpoon and Egypt's Earliest Mediterranean Port" (*Liv. Annals*, vol. i, p. 17 *seq.*).

[2] *Les ports submergés de l'Ancienne Île de Pharos* (Mémoires présentés à l'Institut Egyptien, 1916).

[3] *Palace of Minos*, vol. i, p. 292 *seq.*

[4] "Les ports antéhelléniques de la Côte à Alexandrie et l'Empire Crétois" (Extrait du *Bulletin de l'Institut Français d'Archéologie orientale*, t. xvi).

[5] Borchhardt, *Grabdenkmal des Königs Sahurè* (Leipzig, 1913), with E. Assmann's Commentary.

[6] *De bello Judaico*, iv, c. 10, 6.

[7] R. C. Bosanquet and R. M. Dawkins, *The Unpublished Objects from the Palaikastro Excavations*, part i (1923), p. 7, Fig. 4 (Suppl. Paper of the British School at Athens).

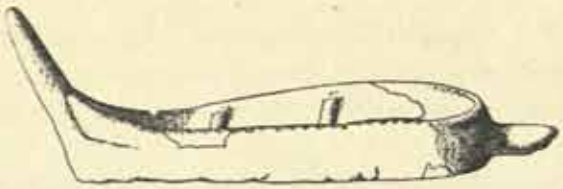


FIG. 3.—CRETAN VESSEL (EARLY MINOAN I), PALAIKASTRO.

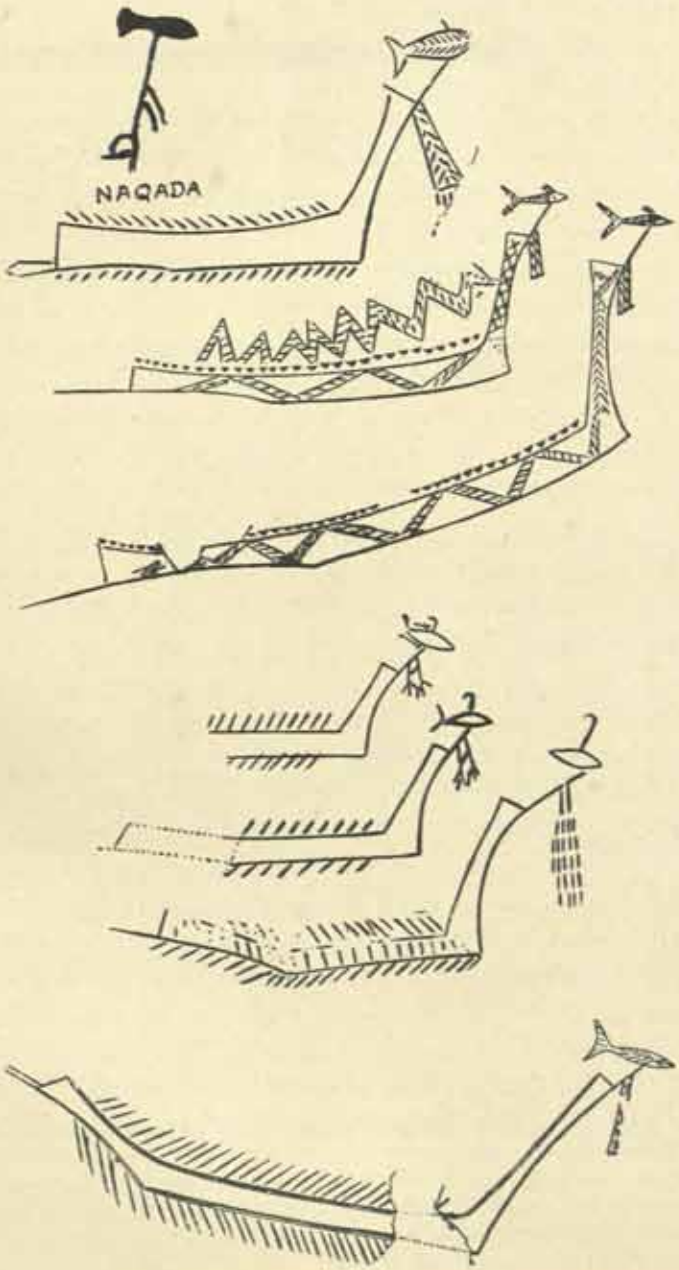


FIG. 4.—REPRESENTATIONS OF EARLY CYCLADIC ROWING GALLEYS.

somewhat later date[1] (Fig. 4). Several of these show indications of oars, in one case 28 on either side, and it is clear that galleys thus propelled must have always played an important part in the Ægean world. In this respect these vessels may be compared with the Nile craft above referred to, so often depicted on late predynastic pots of the decorated class, where the oars are sometimes even more numerous. But there is a further point of comparison of a more distinctive kind. Upon the Egyptian pots, such as those from Naqada, a short pole is generally fixed on the hinder of the two cabins seen amidships, with two streamers attached to it and an ensign at top. The types of these ensigns, apart from small variations or composite forms, hardly amount to a dozen, and Professor Newberry has shown that in several cases these correspond with traditional Nome signs of the Delta. At times, indeed, in groups of vessels shown on the same pot, they are placed in a geographical connection. Thus the double harpoon, the "mountains" sign and the X, standing for the crossed arrows of Neith, thus found in collocation, undoubtedly represent the three North-Western petty kingdoms of the Harpoon, the Mountain, and the "Crossed Arrows," which formed in historic times contiguous Nomes.[2] This geographical connection may have a particular value in the case of a sign showing the outline of a fish that appears on a vessel grouped on a Naqada pot, with another bearing the "Mountain" sign of a region that lay on the Delta Coast. (*See* Fig. 2.) For this, as will be seen, is the recurring ensign on the prows of the Ægean vessels shown in Fig. 4, set, as in the case of Early Nilotic craft, above a pole with two streamers. The elements of correspondence are here threefold, and though the representations of Ægean vessels are actually of later date, their ensign may well have been handed down from much earlier days. The proto-Egyptian barges, indeed, with their central cabins, are of a different and more luxurious class, adapted, it would seem, only for river traffic.

But for voyages across long stretches of open waters the use of the sail was, of course, of great advantage, and in the case of the greater Island, which on the side away from the Archipelago faced the Libyan Sea, there is evidence of the general use of sailing craft from an early date. From the first moment when the Cretan seal-stones began to record the owner's calling in pictographic signs—at least as far back as the beginning of the Second Early Minoan Period, in the first half of the third millennium B.C.—ships with a single mast are of constant recurrence. Early examples from seal-stones are given in Fig. 5.[3] It will be seen that the vessels on these seals have high bows and sterns, the prow, which is generally the higher, often taking the form of an arrow-head or of a fork. Somewhat more elaborate specimens are shown in Fig. 6, belonging to the close of the Early Minoan Age. At times we find indications of a high poop, and on later seals a kind of deck cabin is clearly shown

[1] Tsountas, Ἀρχαιολογικὴ Ἐφημερίς, 1899, p. 90, Fig. 22 (Siphnos). The centre point of these representations seems to be Early Cycladic III (= Early Minoan III), c. 2400–2100 B.C.

[2] P. E. Newberry, "The Petty Kingdom of the Harpoon and Egypt's Earliest Mediterranean Port" (*Liv. Annals*, vol. i, p. 18).

[3] Reproduced from *Scripta Minoa*, vol. i, p. 209, No. 57.

near the stern of the vessel. The tail or spur noted in the case of the Cycladic vessels is visible in some cases, and in Fig. 6, *a*, the two steering oars are clearly discernible. The four-pronged object by the fish on Fig. 6, *c*, is possibly some kind of fishing spear.

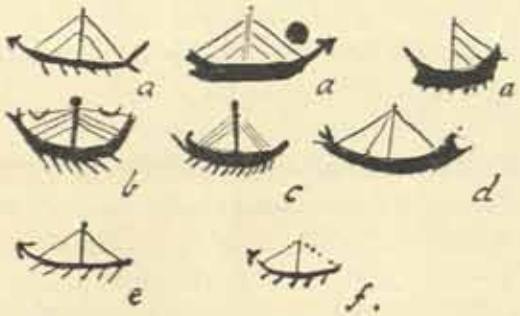
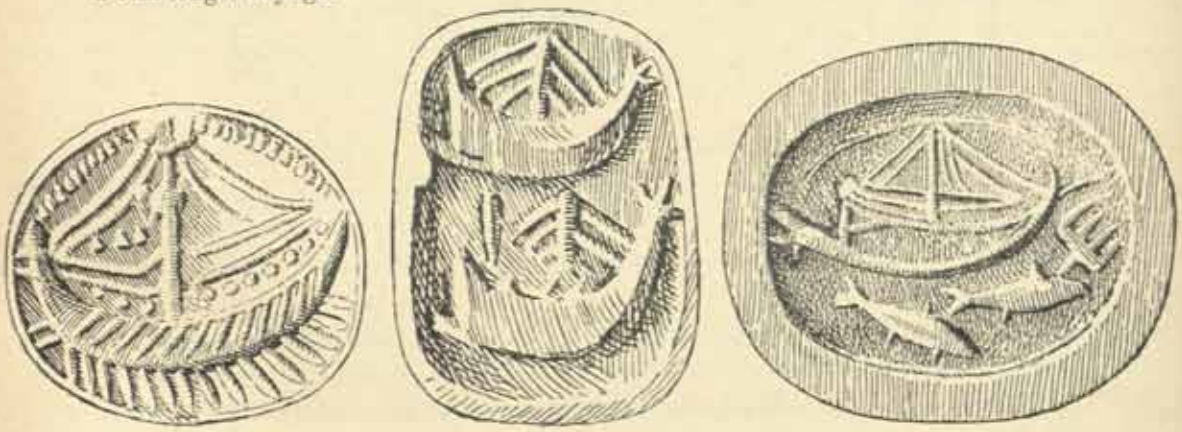


FIG. 5.—SAILING GALLEYS ON EARLY CRETAN SEAL-STONES.

Over the prow of one of the ships shown in Fig. 5 appears a disk, while on either side of the mast, on another vessel, is a crescent. If these may be taken for symbols of the heavenly bodies, it seems probable that they refer to the duration of voyages undertaken; the crescent moons would in this case mean two months and the disk a still longer voyage.



a *b* *c*

FIG. 6.—SHIPS ON EARLY MINOAN III SEAL-STONES.[1]

That the sea passage to the opposite African coast presents no great difficulty is shown by the fact that sponge-fishing craft, with a crew of not more than a dozen men, that touch at the south-eastern ports of Crete ply their trade as far as Benghazi in Tripoli. The direct passage to Derna, the nearest point on the Cyrenaic coast,

[1] Fig. 6, *b*, is from a three-sided steatite-bead seal, *Palace of Minos*, vol. i, p. 120, Fig. 89b. Two ships, one above the other, are those shown. On another face appear three crouched human figures of a kind that recurs on later seals and apparently representing rowers. Probably Early Minoan III.

For *c*, see *Palace of Minos*, vol. i, p. 18, Fig. 7. *See* Xanthudides, *The Vaulted Tombs of Messara* (Droop's Transl.), Pl. xiv, No. 1079. From Tholos B, Platanos. This tomb may have been built at the end of Middle Minoan III, but its main period was Middle Minoan I.

is not more than 180 miles from the southernmost horn of Crete,[1] where, as we shall see, was the great Minoan haven. To Pharos, off the mouth of the Nile, it is 320 miles from the south-eastern ports of Crete. Small sailing vessels from Crete bound for Alexandria generally strike due south till they are within sight of the African shore, and then follow the coast-line east. The passage is itself greatly aided during the summer months, from May till October, by the prevalence of the Etesian north-west winds, or "Meltems," and accompanying current. For the return journey the equipment of oars would be much more necessary.

The early prevalence of a single-masted type of sea-going vessels in Crete, which contrasts with the composite structure to which the Egyptians had recourse down at least to the Vth Dynasty, is explained by the forest growth of the island. The mighty beams of the native cypress (*Cupressus horizontalis*), of which the carbonized remains come to light in the Palace of Knossos, were obtained from the same source, and the straggling remains of old cypress growth are still to be seen on some of the glens and mountain sides, especially in South-Eastern Crete. The island was probably in former times as well provided with timber as the North Syrian coast, and the material here was in the hands of a race whose early training in navigation, due to their geographical connection with the island world to the north, made them more capable of profiting by their possession. It was the deforesting of the island by over-exploitation that, probably more than any human cause, brought about the fall of Minoan sea-power.

So much, at least, there seems to be good warrant for affirming, it was from Crete and neither from Egypt nor from Syria that fully equipped sailing vessels first traversed the open Mediterranean. The ancient Cretans had a truer right to the claim, put forth later for the Greeks of Ægina, that they "first set up masts and sails, the wings of a sea-going ship."[2]

It had long been known that XVIIIth-Dynasty Egypt had had relations with Crete, which can now be dated to its First Late Minoan phase round about 1500 B.C. In 1890 Professor Petrie discovered in a settlement at Kahun, called into being by the great building works of Senusert II, of the XIIth Dynasty (*c.* 1905–1888 B.C.) polychrome sherds which, with prescient instinct, he described as "Ægean." Four years later Professor John Myres, in examining the painted pottery from the Kamáres Cave, which opens on the steeps of Mount Ida above Phæstos, recognized that it belonged to the same fabric as the sherds of Kahun, now classified as Middle Minoan II. Since then these comparisons have been amplified by a variety of finds, notably a polychrome vase found in a tomb at Abydos by Professor Garstang, accompanied by cylinders bearing the names of Senusert (Sesostris) III and Amenemhat III—the

[1] *See* my "Sketch map of the East Mediterranean Basin showing the Central position of Crete," facing p. 1 of *Palace of Minos*, vol. i.

[2] Hesiod, Catal. Frgm. 96: *οἱ δ' ἥροι πρῶτοι ξεῦξαν νέας ἀμφιελίσσας, πρῶτοι δ' ἱστία θέντο νέως πτερὰ ποντοπόροιο.*

latter of whom, according to Meyer's chronological system, reigned from about 1849 to 1800 B.C.

In 1895, when examining a remarkable series of relics from a deposit at St. Onuphrios in Southern Crete,[1] which had certainly belonged to a primitive bee-hive ossuary, I was able to carry back the relations with Egypt to a much earlier date. Not only were there here scarabs with XIIth-Dynasty motives, but associated stone vases, which, coupled with others often of variegated materials obtained by me from other Cretan sites, made it possible for me to extend the comparison to similar Egyptian vases of the IVth Dynasty, and even to suggest a connection with primitive Nilotic pots, which I then termed "Libyan," belonging, as we now know, to the late predynastic stage.

From the beginning of the excavations on the site of Knossos these early comparisons received remarkable confirmation. Fragments have come to light of several carinated bowls of fine translucent diorite indistinguishable from an exquisite example



FIG. 7.—PREDYNASTIC EGYPTIAN BOWL OF SYENITE FROM NEAR THE SOUTH PROPYLÆUM, KNOSSOS.

found in the grave of King Sneferu of the IVth Dynasty (*c.* 2840–2820 B.C.).[2] Part of the rim was also found of a similar vessel, executed in "liparite," a form of volcanic glass peculiar to the Æolian Islands, so that this example probably represents a copy by a Minoan craftsman trained in the Egyptian lapidary school. A derivative Cretan type is also known in porphyry. Of still earlier date is an imported syenite bowl found by the South Propylæum, within what was known in the early days of the excavations at Knossos as the "Central Clay Area" in a layer immediately above the Neolithic (Fig. 7). More recently a large part of another bowl, made of porphyry, came to light in an unstratified deposit north-west of the Palace (Fig. 8).[3] In this case the flat collar, typical of this kind of vessel, is finely under-cut, and the roll handle is perforated. In the same deposit occurred part of a similar bowl in the same

[1] "The Sepulchral Deposit of Hagios Onuphrios, etc." (Supplement to *Cretan Pictographs, etc.*, Quaritch, 1895). *See* especially pp. 116–119.

[2] See *Palace of Minos*, vol. i, pp. 85–87, and Figs. 54, 55.

[3] *See* the forthcoming second volume of *Palace of Minos*, p. 30.

material, with a slightly raised base, and a piece of a vessel of brilliantly polished black porphyry with quartzite crystals—a kind of stone that also recurs among the prehistoric vases of Naqada and Hierakonpolis. A bowl of hornblende porphyry, a good deal rolled, with a less definite collar and apparently without ledge handles,[1] may be slightly later in date, but its variegated material forbids us to bring it down later than the IInd Egyptian Dynasty, when such materials went out of use in Egypt itself.

Probably somewhat later in date is a fragment of another vessel of diorite, showing one of what had been originally five ear-like interior projections, recently found west of the Palace. This proves to form part of a very interesting kind of cup, of which an almost perfect specimen in alabaster from a IVth-Dynasty tomb



FIG. 8.—PREDYNASTIC EGYPTIAN BOWL OF PORPHYRY, KNOSSOS.

at El Kab is in the Ashmolean collection.[2] This cup, otherwise almost unknown in Egypt itself,[3] and possibly of sacral character, was probably devised for drinking some beverage with floating objects. Had mustaches been known in ancient Egypt it might have been called a "Mustache Cup." The type is itself so foreign to lapidary work that we may infer that it originated in a metal form of cup,

[1] *Palace of Minos*, vol. i, pp. 65 and 67, Fig. 32.

[2] The Knossian cup restored is set beside that from El Kab for comparison in *Palace of Minos*, vol. ii, p. 58, Fig. 27.

[3] A later survival of this form exists in faience. A fragmentary cup, now in the British Museum, was found in the Temple of Hathor at Deir-el-Bahari (XIth Dynasty). Dr. H. R. Hall called my attention to this.

presumably copper, with ear-shaped projections of the rim folded inwards. Its origin may therefore go back to a still higher antiquity.

In some ways even more important, archæologically, than the occurrence of remains of imported stone vases of late prehistoric and protodynastic Egyptian stone vessels, is the appearance of a native Cretan class of vessels in softer stones, such as steatite and serpentine, showing forms clearly derived from such exotic types. The records thus supplied, moreover, are more extensive, since they are scattered over a large number of sites; while, so far as Crete is concerned, Knossos itself—overwhelmingly the chief civic and administrative centre of the island—has been hitherto the sole source. Such derivative shapes include not only the broad-collared bowls with roll handles above described (Fig. 9), but higher vessels of the same general character such as are common at Naqada and Hierakonpolis (Fig. 10).[1] In the latter case the prototype was evidently somewhat distant; but certain banded limestone pots, the material of which was chosen to imitate diorite, show a very close resemblance to a VIth-Dynasty type of ointment pot[2] (*c.* 2600 B.C.).



FIG. 9.—SERPENTINE IMITATION OF PRE-DYNASTIC BOWL, ELUNDA, CRETE.

That imported Egyptian vessels, being made of hard and, at the same time, decorative materials, often became heirlooms was only to be expected, and specimens have been found at Mycenæ and Asinê in Late Minoan tombs. But to suppose that such vessels, fragmentary specimens of a whole series of which have been found, as we have seen, on the site of Knossos, and which were indeed already imitated by Early Minoan lapidaries, were imported at a time long posterior to that in which they were in vogue in the Nile Valley itself, can only be described as an ingenious evasion wholly at variance with archæological science.

[1] See *Palace of Minos*, vol. i. pp. 66 and 67, Fig. 35. A specimen (Fig. 36) from an Early Minoan II tomb excavated by Mr. R. B. Seager at Mochlos is thus compared with it.

[2] *Idem*, p. 92 and Figs. 60 and 61, where a marbled limestone pot from Mochlos (Seager, *Mochlos*, p. 80, M 3, and Pl. II) is placed beside Egyptian specimens of VIth Dynasty date. *Cf.*, too, a pot of black-veined limestone found by Dr. Xanthudides in a bee-hive ossuary at Platanos (*Vaulted Tomb, &c.*, Pl. XI, No. 1004).

At Knossos, indeed, where so many remains, generally fragmentary, of these early imported vessels have occurred in unstratified deposits on the outskirts of the site, and in one or two cases embodied in the rubble material of the Palace walls, stratigraphical data, so far at least as regards their upper limit, were still wanting. Nor is the reason of this far to seek. At the very beginning of the Middle Minoan Age the builders of the first great Palace, of which considerable traces have now come out beneath the later structures, with a view to obtaining a more spacious site, had levelled away the top of the original "Tell" that had been formed by successive settlements on this spot. The whole Early Minoan stratum down to its very beginning had thus been removed, and it was from the debris of this, representing probably the remains of earlier residential buildings on the site, that the imported stone vase fragments such as those described above must have been derived.



a *b*

FIG. 10.

a. PREDYNASTIC EGYPTIAN STONE VESSEL, HIERAKONPOLIS;
b. IMITATIVE TYPE (E.M. II), MOCHLOS.

The original Palace of Knossos, like the sister foundation now being excavated by the French School at Mallia, 20 miles to the east, belonged to the opening phase of the Middle Minoan Age (Middle Minoan I*a*). In the centre of the hill the early Palace structures are directly superimposed on the Upper Neolithic, the whole of the Early Minoan strata having been levelled away. Immediately beneath the level of the Central Court, where the paving had been removed, a succession of winters' rains had brought out wall foundations which were the object of investigations carried out in 1923 and 1924. The ground plan of two contiguous houses was thus recovered which, as their contents showed, belonged to the latest transitional phase of true Neolithic. The pottery, much of which shows the incipient use of the potter's oven,

approximated in many respects to that of the First Early Minoan Period.[1] The plans of the two houses uncovered were rectangular, apparently of the "but-and-ben" class, surrounded by an agglomeration of small cells containing large pots for stores and other relics. In contrast to all Minoan buildings, but in conformity with the mainland usage traditional in Asia Minor, there were here fixed hearths. A series of stone implements came to light of the usual Cretan shapes, and remains of clay female images, one of them identical with a known squatting type from the Neolithic of Knossos. There was, however, one exception to the pure Stone Age tradition

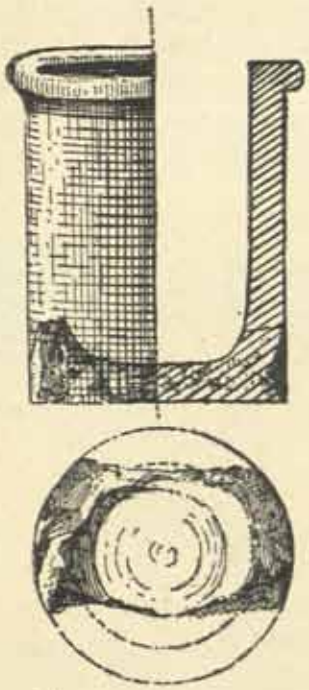


FIG. 11.—GALLIPOT OF MOTTLED LIMESTONE (RESTORED) AND BASE SHOWING TUBULAR DRILL MARKS; LATE NEOLITHIC HOUSE, KNOSSOS.

among the implements, in the shape of a small flat celt of copper found in one of the store cells. Otherwise the contents were too uniform not to be described as pure Neolithic, and the copper axe must be regarded as an importation, not improbably from the Nile Valley. This phase of culture cannot fairly be described as "Chalcolithic." If a term is to be found for such a Neolithic phase in which there is no trace of indigenous copper working, though intrusive copper objects may yet be found, the word "Oligochalcic" might perhaps be suggested on geological analogy.

[1] There were traces of an earlier and later arrangement, but the objects found represented throughout approximately the same cultural stage. For a detailed account of these discoveries see *Palace of Minos*, vol. ii.

Of special interest in their bearing in the Early Nilotic connections were two finds made here in the area occupied by House A. In a small compartment (No. 15), on the original floor level, occurred the base of a small cylindrical vessel of mottled limestone, with clear traces within of turning by a tubular drill, the "gallipot" shape of which, as restored in Fig. 11, closely resembles, on a smaller scale than usual, a typical class of late predynastic and protodynastic vessels. In the upper stratum, and standing in relation to a slightly later structure, came to light two fragments of vases in hard stones of variegated textures, one probably belonging to a small bowl of the collared class described above, the other forming part of a large basin 3 feet 10½ inches in diameter, with a round hole at the bottom like the basin of a modern wash-stand. Nothing of the same type has been found in Egypt or elsewhere, but the material—a dark rock with quartzite veins—appears to be exotic; and in any case this, like the other fragment, shows that the Nilotic usage of stone vessels wrought

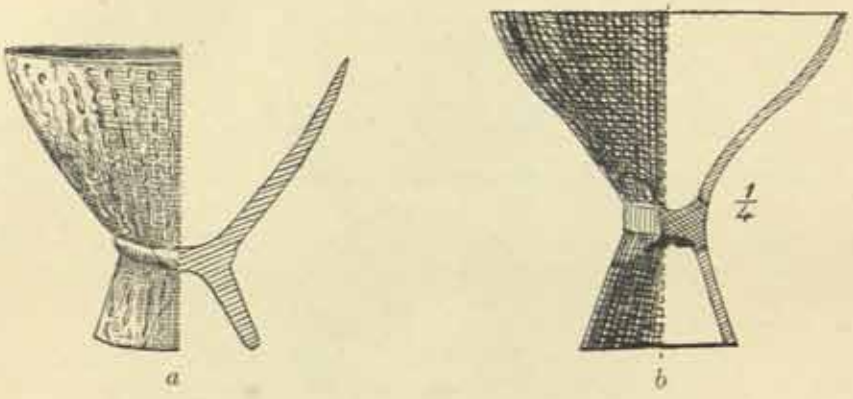


FIG. 12, *a*, *b*.—CLAY CUPS WITH CONICAL STANDS; LATE NEOLITHIC HOUSE, KNOSSOS. (*a*, c. ½ scale.)

in decorative materials had already taken root on the site of Knossos by the transitional Late Neolithic phase.

Among the ceramic forms here found, a class of cups with truncated conical stands have a special chronological value (Fig. 12, *a*, *b*). They are the immediate predecessors of the higher and more elegant class of pedestalled chalices, well represented in the ossuary cave of Pyrgos,[1] a little to the east of Knossos, where the earliest examples belong to the First Early Minoan Period. Several of the fragmentary specimens found in the Late Neolithic house show a raised band round the narrow part of the vessel between the stand and recipient, which by analogy with other Cretan ceramic forms suggests an original in metal work. And in this case the original must surely be found in a similar type of copper cup (Fig. 13), of which specimens were found by Professor Petrie at Abydos in the tomb of King

[1] See *Palace of Minos*, vol. i, p. 59 and Fig. 19.

Khasekhemui,[1] identified by him with the last king of the IInd Dynasty.[2] It is possible that this simple form of copper cup may have been in use at a considerably earlier date, though this close comparison, taken by itself, might be regarded as an indication that at Knossos the transitional Neolithic phase may have overlapped the beginning of the Egyptian dynasties.

But for intimate comparisons between early Crete and Nile Valley, as well as the opposite Libyan coasts, a group of monuments specially characteristic of the Messarà plain and its borders in the southernmost district of the Island, supply our best materials, nor can there be any doubt that so far as Egypt is concerned they largely connect themselves with the earlier indigenous element.

The monuments in question are large stone ossuaries built in the bee-hive manner and to which the significant remains from St. Onuphrios already referred to undoubtedly belonged. The fundamental connection of these structures themselves

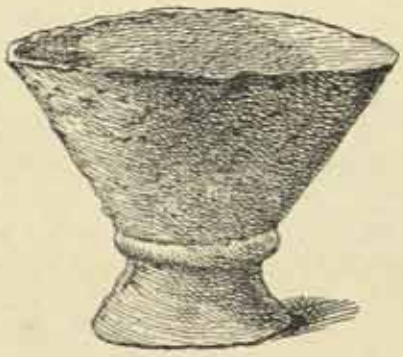


FIG. 13.—COPPER CUP, PROTODYNASTIC: ABYDOS, EGYPT. (About ½ scale.)

has, as I hope to show, a very important bearing on our present subject. Their methodical exploration, first begun by Professor Federigo Halbherr at Hagia Triada, near Phæstos, has been followed up by the indefatigable researches of the Cretan Ephor of Antiquities, Dr. Stephanos Xanthudides, the results of which have been admirably put before English readers in Professor Droop's translation entitled *The Vaulted Tombs of Messará*. Owing to the results of successive journeys through the south of the Island I have myself been able to inspect almost all the known examples of these primitive ossuaries, and, in the course of some explorations undertaken this summer in the ranges that overlook the Mallia district on the northern coast of

[1] *Royal Tombs*, vol. ii, Pl. IXA. Two examples were found about 8 cm. high. The Knossian cup, Fig. 12, *a*, is about the same height; Fig. 12, *b*, is 17·5 cm.

[2] *History of Egypt from the Earliest Times to the XVIth Dynasty*. Tenth Edition (1922), pp. 36-39. He is there identified with the "Kheneres" of Manetho. Eduard Meyer prefers to identify him with "Necherophes," the first king of the IIIrd Dynasty (*Aeg. Chronologie*, p. 138 *seq.*). He dates his accession *c.* 2895.

Central Crete, was able to establish the fact that at least one sporadic monument of the kind exists on that side.[1]

Among the objects found by Professor Halbherr in one of these sepulchral *tholoi* at Hagia Triada, about the relations of which there could from the first be no doubt, were a series of stone idols curiously recalling those of Naqada (Fig. 14). Similar

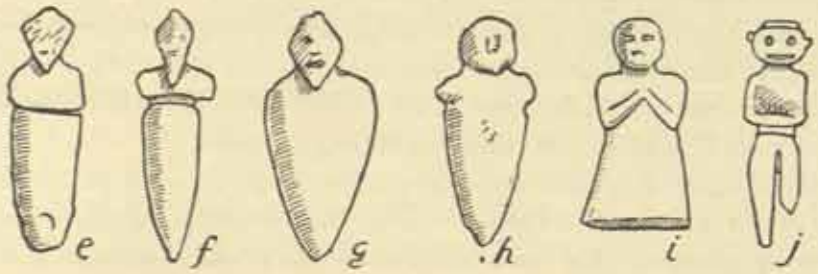


FIG. 14.—STONE IDOLS OF PROTO-LIBYAN TYPES. OSSUARY THOLOS OF HAGIA TRIADA.

figures were found by Dr. Xanthudides in ossuaries of the same kind at Platanos, Kumasa and elsewhere. In some cases these reproduced the high head and pointed chin—apparently accompanied by a short beard—of the indigenous Nilotic race. Often, as in the case of many predynastic Egyptian figures, they are pointed below, but sometimes, as these, square cut. The tables (Figs. 14 and 15) giving parallel types from Hagia Triada and predynastic Egypt show how close the resemblance is;

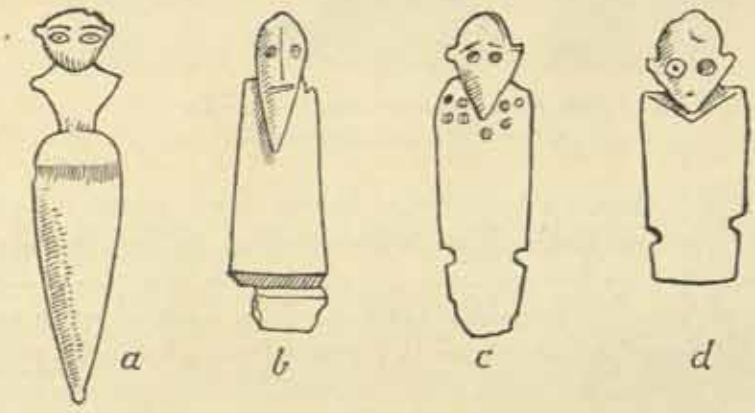


FIG. 15.—PREDYNASTIC EGYPTIAN FIGURINES, NAQADA.

but the Cretan specimens, many of which date from the middle of the Early Minoan Age (Early Minoan II), or later, point to a survival of these types in Southern Crete at a time when they seem to have been uprooted by the historic Egyptians in the Nile Valley. Or, alternatively, their continuity may have been maintained in some Libyan area to the West of the Delta, whence they were passed on to Crete.

[1] Near the upland village of Krási.

The outline of some of these figures may be recognized in a more artistic shape among the predynastic ivories, and here and there we have traces of the old Nilotic garb. A limestone example of this class, for instance, obtained by me, before the

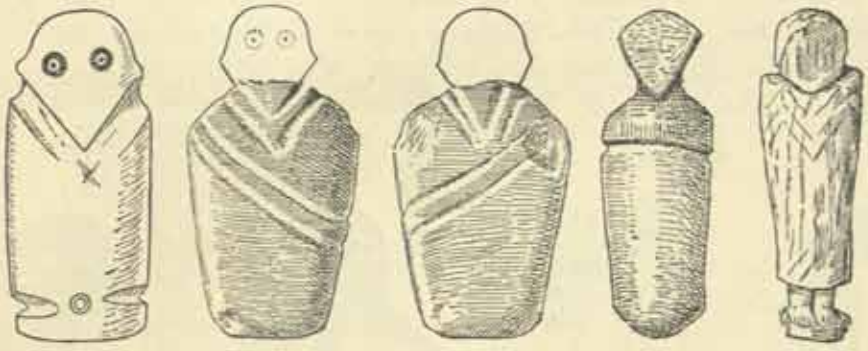


FIG. 16.—COMPARATIVE EXAMPLES OF FIGURES IN IVORY AND STONE.
a, NAQADA; *b* 1, *b* 2, KNOSSOS; *c*, MESSARÀ; *d*, HIERAKONPOLIS (IVORY).

excavations, from the site of Knossos (Fig. 16, *b* 1, *b* 2), suggests the folds of a mantle such as recurs on the Hierakonpolis figurines of both sexes. The women's costume, as seen towards the close of the Early Minoan Age (Fig. 17, *b*, *c*, *d*), shows a cloak

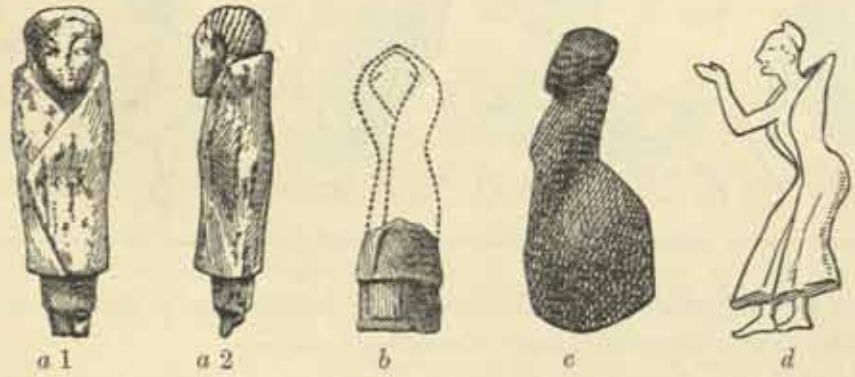


FIG. 17.—COMPARATIVE EXAMPLES OF FEMALE FIGURES.
a 1, *a* 2, PREDYNASTIC IVORY, HIERAKONPOLIS; *b*, PETSOFÀ; *c*, MESSARÀ THOLOS, FROM SEAL-STONE (E.M. III).

rising above the neck in a cape-like manner which recalls fashions illustrated by predynastic female figures such as Fig. 17, *a* 1, *a* 2.[1]

[1] These and other early Nilotic comparisons will be found illustrated in fuller detail in a section of my forthcoming second volume of the *Palace of Minos*.

A distinctive feature among the Libyans, already exemplified among the prehistoric ivory figures from Hierakonpolis[1] and of constant illustration on Egyptian monuments from the protodynastic period,[2] is the appearance of a long side-lock either before or behind the ear and falling down over the breast. It seems difficult not to recognize the influence of this fashion in the characteristic manner of hair-dressing affected, at least from the latter part of the Middle Minoan Age, by the Minoan men, as shown for comparison in Fig. 18. With regard to the beard, however, there was a clear divergence; the Cretans, at least from the Early to the Middle



FIG. 18.—COMPARISONS BETWEEN LIBYAN (*a–d*) AND MINOAN FASHIONS (*e–h*) OF DRESSING THE HAIR.

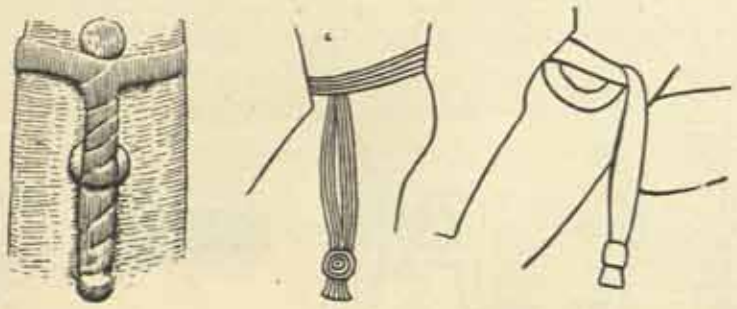
Minoan Age, following the Egyptian practice of depilation, while the Libyan men continued to wear the pointed beard of prehistoric tradition.

Another very characteristic feature of Minoan usage, however, finds a parallel both among the historic Libyans and the Early Nilotic population. This is the

[1] Among the ivory figures from Hierakonpolis this type of hairdressing is exceptional, and has not been hitherto recognized, but a clear example exists in the Ashmolean Collection (E. 176) of a head with long hair behind and a lock falling over the right ear on to the beard (*Palace of Minos*, vol. ii, Suppl., Pl. i). The traces of the belt show that the figure is that of a man. Another example is more uncertain. Of the men on the Gebel-el-'Arak knife-handle, one group shows the side-lock.

[2] The earliest examples cited by Oric Bates (*Eastern Libyans*, p. 134) are from monuments of the Vth Dynasty.

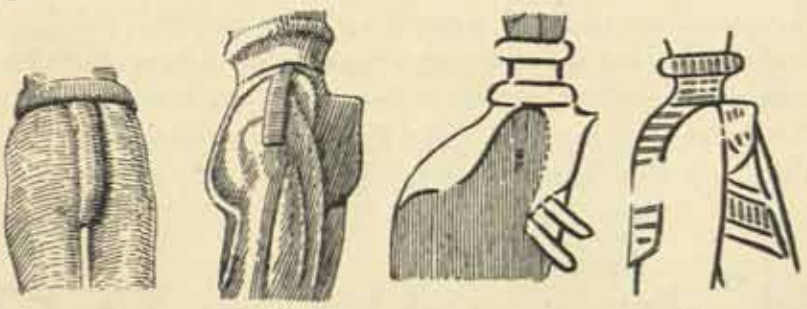
so-called "Libyan sheath," or penistasche, the envelope in this case being suspended from the front of the girdle,[1] while in the Minoan attire it is contained in a band or ligature drawn upwards to the girdle from between the thighs. (*See* comparative examples, Figs. 19, 20.) Here, it may be remarked, the Libyan arrangement seems



a *b* *c*

FIG. 19.—THE "LIBYAN SHEATH."
a. PREDYNASTIC (HIERAKONPOLIS); *b c*. DYNASTIC EGYPTIAN PERIOD.

to be a distinctly African feature, since—not to speak of some general parallels from the south of the Continent—a very similar sheath is still in use in Togoland west of the Niger.[2]



a *b* *c* *d*

FIG. 20.—MINOAN LOIN CLOTHING AND LIGATURE.
a. PETSOFÀ (M.M. Ia); *b*. BRONZE FIGURE (M.M. III–L.M. I); *c*. MALE ACROBAT (L.M. II); *d*. FEMALE ACROBAT (L.M. II).

But this general analogy between the Minoan and Libyan usage can be carried a step further. There is evidence that, as a sign of dignity, Libyan chieftains' wives were clad in men's costume, including this distinctive article of male attire.[3] But a literal parallel to this is supplied by the female performers seen in representations

[1] *See* Bates, *op. cit.*

[2] F. von Luschan, *Globus LXXIX*, p. 197 *seq.* The specimen there shown (Fig. 3) is from Moba in North Togo, the sheaths there being of soft leather or woollen.

[3] *See* especially Oric Bates, *Eastern Libyans*, pp. 113, 114, and compare P. E. Newberry, Ancient *Egypt*, 1915, Pt. III. Fig. 4, and pp. 101, 102.

of the Minoan bull-grappling sports who, like the Libyan ladies, wear the same loin clothing as the men, including the indication of the male sheath (Fig. 20, *d*). The girl acrobats who thus performed feats in honour of the Minoan Goddess seem themselves to have taken a high place among her devotees.

Elsewhere I have given reasons for believing that the spiritual being of Neith, the Libyan Delta Goddess, was in part at least incorporated in that the Minoan Virgin-Goddess, of whom moreover the bow and arrow were also traditional symbols.

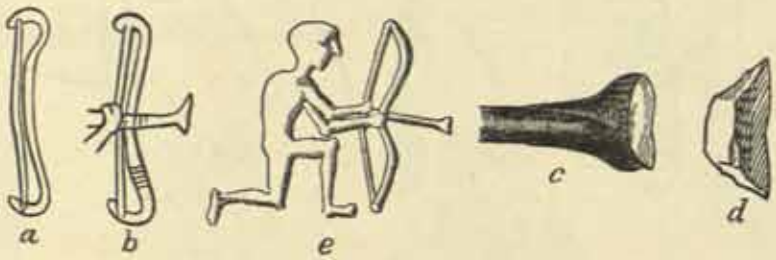


FIG. 21.—BOWS AND ARROWS.
a, *b*. PREDYNASTIC; *e*. CRETAN (M.M. IIIb); *c*. EGYPTIAN CHISEL-EDGED ARROW-HEAD; *d*. DITTO, SAHARA.

The character of the arms with which she was associated itself, moreover, curiously corresponds with those traditional in Minoan Crete. The earliest bows of which we have representations on Cretan seal-stones are clearly of the "plain" rather than the composite kind, and bear an analogy to the early Nilotic forms seen in Fig. 21, *a*, *b*, as well as in the Egyptian hieroglyph for bow. Mr. Henry Balfour, the first authority on the evolution of the bow, is of opinion that these are specialized varieties of a type of "plain" bow that still survives in Somaliland. On the Knossian ivory seal from

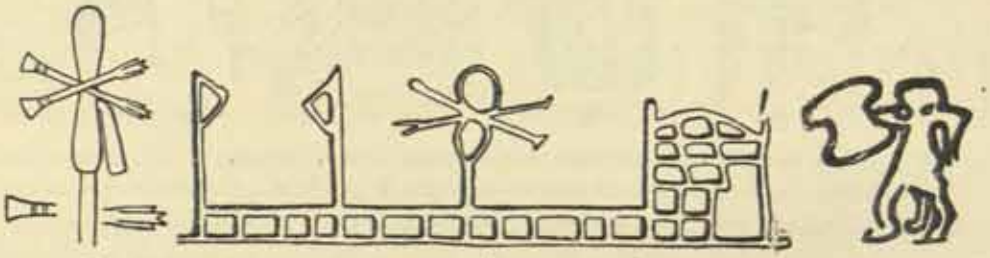


FIG. 22.—SHIELD AND ARROWS OF NEITH (*a*, *b*. PROTODYNASTIC; *c*. LIBYAN ROCK-CARVING).

which Fig. 21, *e*, is taken we see moreover this type of bow associated with an arrow of the same chisel-edged type as the traditional arrows of Neith (Fig. 22). This chisel-edged form also appears in a Minoan hieroglyph. Arrow heads of the same broad-edged type occur in Egyptian tombs, and are abundant in the Neolithic settlements of the Sahara region. They recur in the shell mounds of Mugem, in Portugal, and though they are sporadically well represented throughout a wide European

region, they seem to have had a specially abiding connection with this southern zone. They might, perhaps, be described as an "Epipalæolithic element."

It is further observable that in protodynastic representations of the emblems of the Libyan Goddess (Fig. 22, *a*, *b*) the crossed arrows of Neith are associated with an oval shield with incurved sides which agrees with the well-known eight-shaped body-shield of Minoan Crete and Mycenæ. This reappears in a Libyan rock-carving (Fig. 22, *c*). In Crete, as is shown by the example on a bead seal (Fig. 22 *bis*, *a*, *b*),

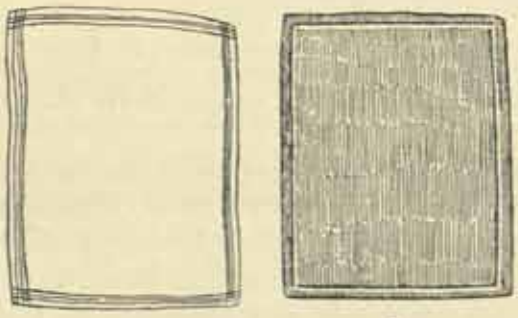


a 1 *a* 2 *b* *c* *d* *e* *f*

FIG. 22 *bis*.—REPRESENTATIONS OF MINOAN (8-SHAPED) SHIELDS.
a, *b*. E.M. III; *c*–*e*. LATE MINOAN; *f*. PALLADIUM ON MYCENÆ SIGNET.

this form of shield can be traced back at least to the closing phase of the Early Minoan Age.[1] Where, as in the case of the painted tablet from Mycenæ, and the great signet ring (Fig. 22 *bis*, *f*), we see a divinity, in the former case certainly a goddess, protected by a shield of this kind, anticipating the Palladium, we may recall the fact that Neith, as worshipped by the Ausean Libyans, was identified with Athena.

Among the relics found in the primitive "bee-hive" ossuaries of Southern Crete two classes of objects are specially significant. The rectangular stone palettes used,



a *b*

FIG. 23.—STONE PALETTES.
a. PREDYNASTIC; *b*. FROM MESSARÀ THOLOS.

together with others of more varied outlines, by the predynastic population for malachite and antimony to adorn the person (Fig. 23) are of frequent occurrence in these interments, doubtless for similar toilet use (Fig. 23, *b*). A heavy form of vessel consisting of a stone block with cups cylindrically bored and with diagonal perforations on the upper edge, which occurs among the prehistoric vessels of

[1] The Hittite and Dipylon types are of somewhat different character, though there are some indications that they may go back to a parallel Anatolian class.

Hierakonpolis (Fig. 24, *a*, *b*) is the progenitor of a whole series of later and somewhat more decorative forms but presenting the same essential characteristics, contained within these Cretan *tholoi*. (*See* Fig. 24, *c*, *d*.)

How, then, are we to explain these striking correspondences in forms and usage? So numerous, in fact, are the points of comparison presented by the contents of these early Cretan interments with those of predynastic Egypt that, far-fetched as the conclusion might appear at first sight, I was already some years since constrained to put forth the suggestion that about the time of the conquest of the lower Nile Valley by the first historic dynasty some part of the older population had actually settled in this southern foreland of Crete.[1] It was only some more recent discoveries on the further shores of the Libyan Sea that have opened my eyes to the fact that the interments themselves and the sepulchral vaults within which they lay might themselves be due to this "proto-Libyan" element.[2] The conformity presented by the contracted

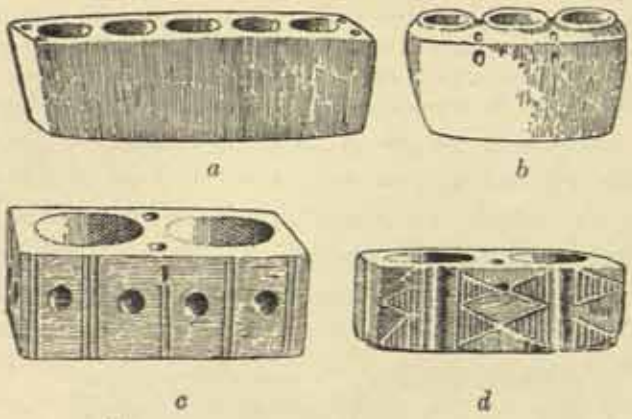


FIG. 24.—STONE VESSELS WITH CYLINDRICAL CUPS.
a, *b*. PREDYNASTIC; *c*, *d*. CRETAN OSSUARY THOLOI.

position of the bodies[3] with the Libyan practice of trussing the dead is itself of too general a nature, as is also the fact that the few skulls preserved were almost all dolichocephalic.[4] Of a more specific nature, however, is the appearance of small foot-shaped amulets of stone, which fits in with the Nilotic practice of attaching such to the ankles. Of the greatest significance, however, is the form of the sepulchral vaults themselves.

The true bee-hive structure of these great ossuaries is shown not only by the inward slope of the walls, but from the discovery in the smaller tholos at Platanos

[1] e.g., *Palace of Minos*, vol. i, p. 17.

[2] I first put forth this suggestion in my preface to Dr. Xanthudides' *Vaulted Tombs of Messará* (Professor Droop's translation, 1924, pp. xi–xiii).

[3] *See* my observations, *op. cit.*, p. xii, note 2.

[4] Professor Sergi, who examined skulls from the Hagia Triada tholos, includes them in his "Mediterranean" class. (Cited by Halbherr, *Memorie dell' Ist. Lombardo*, xxi, p. 252.) (For other observations of skulls from the Messará ossuaries, *see* Xanthudides, *op. cit.*, pp. 126, 127.)

of the fallen coping slabs from the summit of the vault. The mass of fallen stones found here within the remains of the circular lower wall amounted to 23 cubic metres, and, assuming that as in the case of later domed chambers of the same kind like those of Mycenæ the interior height and diameter were about equal, the vaults in this case would have been 10 metres high. The larger structure beside it would have had a height of over 13 metres, only slightly less than that of the "Tomb of Clytemnestra."

These buildings differed, indeed, from the Mycenæan examples in their entrance system. In place of the entrance passage or dromos we find in the case of these primitive Cretan *tholoi* a small rectangular vestibule in front of the door-way. (*See* plan, Fig. 25, *d*.) This rectangular enclosure, which seems to have also served a ritual purpose, represents, in fact, the pit-like approach of a well-known class of primitive bee-hive dwelling, the floor circumference of which, as in the case of these Messarà vaults, was below the ground level.

A good example of the plan of such a bee-hive vault, at Kumasa on the southern border of the Messarà plain, is shown in Fig. 25, *d* 1, *d* 2, *d* 3. It will be seen from the comparisons given in this figure that it represents in a primitive stage a sepulchral type that seems to have had a wide diffusion in the old Libyan regions of North Africa, though in those about which the evidence is attainable the entrance pit has already taken a secondary character. Thus, in the monument (Fig. 25, *a*) which enclosed a central grave cist, the original pit survives as kind of exterior "chapel" of mud bricks. This example occurs in the cemeteries of the Middle Nubians, or "C Group," dating from the VIth to the XVIIIth Dynasty and recognized as Libyan by Oric Bates, with whom has passed away the greatest authority on all things connected with the Eastern Libyans.[1] The base of a somewhat analogous structure, with a kind of offering niche recessed in its outer, orthostatic wall, was found in the desert east of Hierakonpolis (Fig. 25, *b*); and far away to the west of Sahara, in the Sud Oranais, Messrs. Randall, Maciver and Wilkin observed sepulchral circles presenting essentially the same plan, with flat, upright ring-stones, and the entrance reduced to a rudimentary niche.[2] Other interesting remains of the same class showing the lower part of what seems to have been domed vaults like the Cretan, containing numerous cists with contracted burials, were discovered by Bates on "Seal Island" in the Gulf of Bombah (Fig. 25, *c*, *c* 2, *c* 3), a locality of great importance, since it lies immediately opposite the southernmost promontory of Crete. Under its older name, Platæa, indeed, it was the first stepping-off station of the Greek colonists from Thera on their way to Cyrene.

What adds to the significance of these parallels on the African side is the fact that in Crete, though indeed the wigwam form of dwelling was not unknown, the

[1] *See* especially *Eastern Libyans*, p. 245 *seq.*

[2] "The Circles of the Senam of Msila" (D. Randall Maciver and Anthony Wilkin, *Libyan Notes*, 1901, p. 78 *seq.*, and Pl. xv, i).

characteristic house plan from Neolithic times onwards was rectangular. The circular stone constructions which in Messarà were used as sepulchres for the dead represented, in fact, a form of dwelling-houses of the living which was not at home in the Island. On the Libyan side, on the other hand, they are seen to fit on to a class of round huts generally diffused throughout that region, and which correspond with an equally widespread class of ancient tombs. It is these, in fact, in their final evolution, that have given us such monumental mausolea as the Madrasen and Tombeau de la

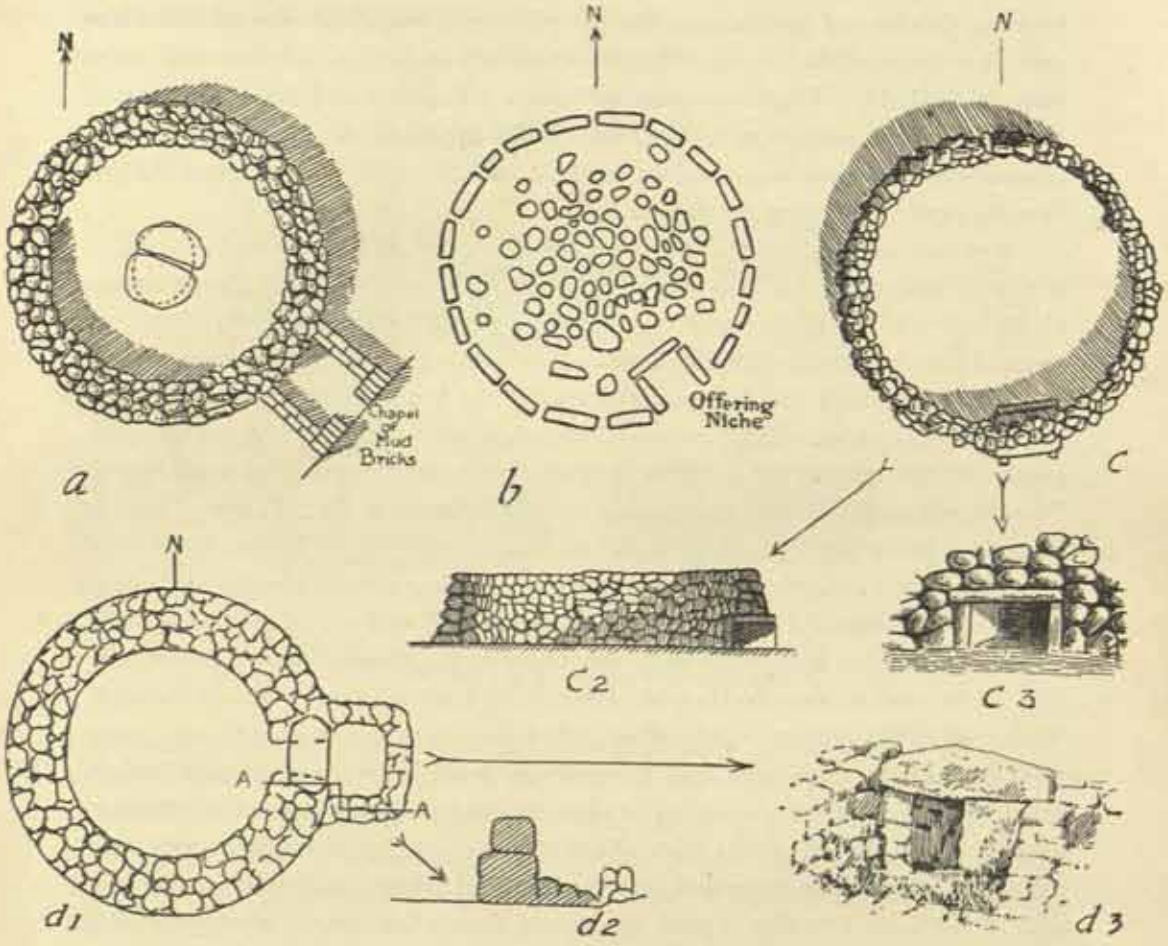


FIG. 25.—COMPARISONS BETWEEN CRETAN OSSUARY VAULTS AND LIBYAN EXAMPLES.

Chrétienne. But the prototype must still be sought in the traditional round huts of the old Libyan race, so well known to the Romans as "*Mapalia*." It is interesting, indeed, to find St. Jerome comparing these African huts with "furni" or "ovens,"[1] the name (φοῦρνες) by which the smaller bee-hive tombs are still known to the Cretan peasants.

[1] In Prol. Amos, "Agrestes quidem casas et furnorum similes, quas Afri appellant mapalia."

The multiplicity of these connections with the old indigenous race of the opposite African coast, and with which we undoubtedly have to deal in the predynastic population of the Nile Valley, can in fact be hardly explained on any other hypothesis than that of an actual settlement in Southern Crete. Here, as I was able to establish in 1924, not far from the great Minoan foundation of Phæstos and in the neighbourhood of primitive sepulchral monuments such as those described, lies the ancient port of Komò,[1] which was also the starting-point of a line of built way across the central ranges of the Island to Knossos, the principal seat of its Priest Kings.

That, later on, these proto-Libyan immigrants became entirely assimilated to the old Cretan population is only what we should expect. But the engrafting of this artistic element on the indigenous island stock may well have contributed to the later bloom of the Minoan culture.

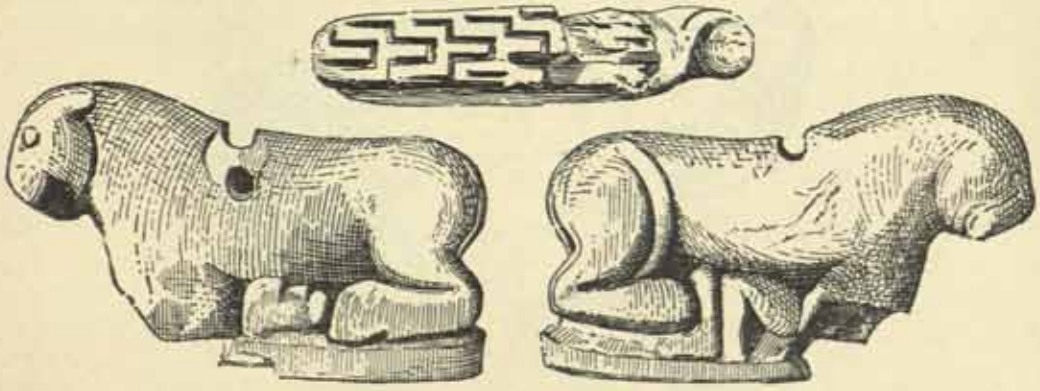


FIG. 26.—IVORY RELIC FROM THOLOS OSSUARY, KALATHIANÀ.

Among the minor relics found in the large *tholos* tomb of Kalathianà, an ivory object (Fig. 26) showing a couchant lion recalls a frequent concomitant of the late prehistoric and earliest dynastic deposits of Egypt. But in this case it has a peculiar interest. The King of Beasts does not appear here as a devourer, but as serenely guarding the body of a man, seen in the same contracted attitude as the dead within the vault.

Rough as the portraiture is, it is yet characteristic, and the high head, prominent nose, and sharply cut features certainly recall the old Nilotic racial type such as we see it in the case of ivory figures from Hierakonpolis.

A curious relic (Fig. 27, *a* 1, *a* 2) obtained by me from the Messarà district at a time when objects derived from the Hagios Onuphrios ossuary were in peasants' hands, suggests some early contact at least with an ethnic ingredient of negroid affinity.

The object itself is an inlay of *Tridacna* shell—the nearest habitat of which, as already noted, was the Red Sea—such as was used in Crete for small carved works from the close of the Neolithic Age. The bearded face, of repugnant aspect, here

[1] See *Palace of Minos*, vol. ii, § 35.

seen, with its disproportionately large eyes, snub nose and thick lips, certainly recalls the men belonging to some conquered tribe, the exposure of whom to wild beasts is recorded on a late predynastic tablet (Fig. 27, *b*). The captives here, who wear the distinguishing sheath, seem to be negroized Libyans, and it is possible that the shell inlay had belonged to some composition of the same character.

In the dark period that intervenes between the VIth Dynasty of Egypt and the foundation of the Middle Kingdom there seems to have been a revival of the old element in the Nile Valley which finds some echo in Crete during the last Early Minoan phase. I have elsewhere called attention to a curious evidence of this in a type of Minoan button seal that now appears, marked by what may appropriately be called the "double sickle" motive. But this motive, as will be seen from the diagrammatic sketch (Fig. 28),

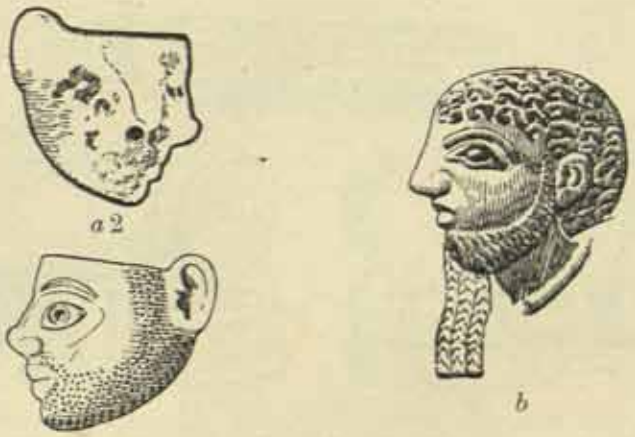


FIG. 27.—*a* 1, *a* 2. INLAY IN FORM OF FACE WITH NEGROID CHARACTERISTICS; *b*. OF MAN OF CONQUERED TRIBE ON PREDYNASTIC TABLET.

originates in a recurring device on "Egypto-Libyan" seals of the same button-like shape presenting a schematic figure of two reversed lions.

The game of draughts, which is also illustrated on Early Minoan bead-seals, shows a board and men identical with that perpetuated in Egypt by the "*Men*" sign, while the Egyptian game in turn goes back to a predynastic prototype.

In estimating the indebtedness of Cretan culture to the early civilization of the Nile Valley it is often difficult to say how far it was due to the old Delta people and how far, at second hand, to the Egyptians of the early dynasties. If in the early *tholos* builders of Messarà we may trace an actual settlement of a fragment of the original Nilotic race, we may conclude that the ancient Cretans learned from them by actual contact in the Island certain secrets of their crafts. How, indeed, without such actual apprenticeship at hand, could Minoan lapidaries have so early gained an almost equal perfection in dealing with their native rocks? The fabric of glazed

wares in Crete, which goes far back into the Early Minoan Age, must have been derived from the same source, for in this case, too, the older folk were the instructors of the Egyptians. As Professor Newberry has shown, it is to the Tehenu of the Western

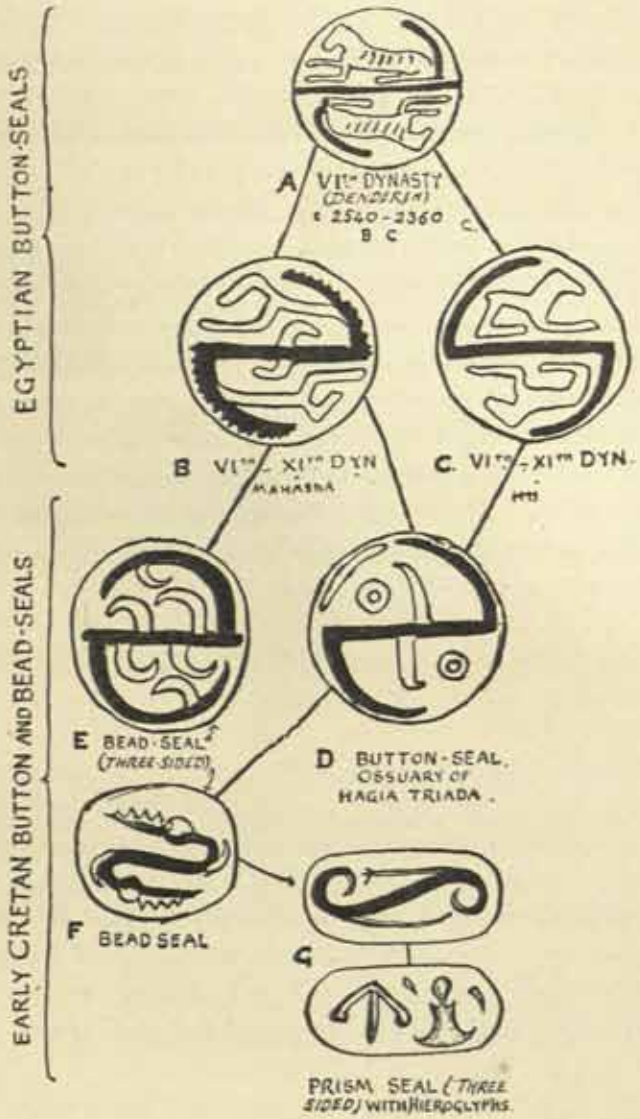


FIG. 28.—DIAGRAMMATIC SKETCH OF "BUTTON-SEALS," ETC., SHOWING ORIGIN OF "DOUBLE SICKLE" TYPE.

Delta (who in the predynastic period had already attained a knowledge of the making not only of glazed ware but of glass itself) that the Egyptian word for such products, *tehent*, is due—an expression of a cultural debt which recalls our own word "china."

It is impossible within the limits of a short address to do anything like justice to the influence exercised on the beginnings of Minoan culture by Egypt, both in its late prehistoric and early dynastic phase. Much, too, might be said on the part played by early Egyptian cylinders in introducing into the Early Minoan seals exotic forms of animals and monsters—among them the Minotaur itself—which had passed, indeed, thus through a Nilotic medium, but which had their origin further east. Religious types and symbols were also taken over. The cult of Hathor affected that of the great Minoan Goddess not, we may conclude, in externals only. The Hippopotamus Goddess, Taurt, was the forerunner of a beneficent race of Minoan Genii. To quote some words from my forthcoming second volume on the Palace of Minos: "the hieroglyphic writing of Egypt stimulated the growth of an independent Minoan script which included a certain number of borrowed signs, such as the *ankh*, or life symbol, the libation vase (*qebeh*), the bee (*byty*) of the royal title, and the Palace sign itself. The long-spouted teapot-like crocks of the Early Minoan household were modelled after the copper ewers of contemporary Egyptian usage. Even the humble Cretan used ointment pots of Egyptian shape, and to complete his toilette had the choice of two varieties of depilatory tweezers in vogue under the Old Kingdom. Beneath the ilex shade he played his favourite 'backgammon,' such as had been popular at a much earlier date on the banks of the Nile, and he went to bed with the aid of a candlestick of proto-dynastic shape."

MEDICINE AND WITCHCRAFT IN EDDYSTONE OF THE SOLOMONS.

[With Plates XXIII and XXIV.]

By A. M. Hocart.

Introduction.

The following record is a continuation of "The Cult of the Dead in Eddystone Island."[1] The subject of medicine was shared between the late Dr. Rivers and myself, but the material is so abundant that either's share can stand by itself. The subject of witchcraft was not properly mine, but I happened to come across sufficient facts to represent the native idea, and some account of it is necessary for an understanding of medicine.

I have refrained as far as possible from all comment, even on obscurities in the texts (pp. 264–270); the translations are for the general reader; the specialist should learn the language and read them in the original. To discourse on Melanesia without knowing the language is as unsafe as studying Greek antiquities without knowing a word of Greek.

I.—Witchcraft.

Witchcraft is called *mbā*. Eddystonians have a reputation for it among their neighbours, but they themselves look upon Vella Lavella and Ysabel as rich in witchcraft.

A witch's powers are inherited: the children take after the parent, even if he dies when they are children.

A witch (*mbī*), in order to kill, wraps up matches, consumed tobacco, peels of esculents, bits of meat or pudding, anything of the kind which has been used by the intended victim; this parcel, called *penupenu*, he inserts between the waist-band and the hip: a woman inserts it in her pad on the buttocks. The leavings are collected by the *tomate mba*, or "witch spirit;" it is merely the spirit of a deceased witch.

The witch cannot fly or perform any miracles: he is in every respect an ordinary human being.

The witches have their opponents, men who know how to discover the witch and cure the malady. Among the witch-finders are Kundakolo, Kundaite (Pl. XXIII, Figs. 1 and 2), Laiti Lavata, Laitite, Matekolo: they, too, have spirits called *tomate kuri*. The meaning of the word *kuri* is not known: it is not applied to living holders of anti-witch charms, but only to spirits. The *kuri* spirits reveal the guilty witch by the usual method of divination. Formerly the man so denounced was apprehended and hung up by the hands till he revealed the place where he had hidden the leavings (*penupenu*); he

[1] *See* this *Journal*, vol. LII, 1922.

was then taken down and, with hands bound, led them to the spot. The parcel was then put into cold water to cool. In this way Keana was rescued from the practices of Kolumunda, a Vella Lavellan, and Mbolana saved from Kapanjama. The presence of the Government has put a stop to the practice, so they must now rely on the anti-witch spirit to bring back the parcel, in a manner which I shall describe in the chapter on Medicine.

The leading motive of the witch is envy; he wants to make a "good man" die. If he sees a man of substance, "he got plenty work long bush or thing long house," he begs for food or anything, and if refused casts a spell on the owner. Someone was said to have bewitched Sepu's child because the father had refused to grant a request of the witch's. Chiefs are especially exposed to their malice: at night, when the people are watching in the house where the dead chief lies in state, the witch who has brought about his death, or *eri*, as he is then called, steals out into the bush with shield and spear; there he dances and blows the bassoon (*suki*): "In your lifetime," says he, "you were a chief, high and mighty, and had no equal. Why are you dead? You had power, and yet died."[1] If a woman, the *eri* takes off her clothes and puts them on her head, masturbates with a stick, dances and makes water all about. Kundakolo can find him by means of a charm called *Tuñge mba*, or "grasping the witch." Kunda takes two pairs of *rara* leaves on his neck and holds out four pairs of *rara* in his hand, together with four of *vaiova*; the leaves begin to quiver and lead him to the spot where the *eri* is dancing; he grasps his hand and strokes him with the leaves, saying: "Be sensible thou, do not kill, do not bewitch."[2] The *eri* recovers his senses, weeps, is afraid, and offers a shell ring not to tell: if so, it is well with him; but if he has no money Kundakolo will proclaim his malefactions. Kuvo of Vella Lavella killed Kavepeso of Ove by witchcraft: they had had a row, and Kavepeso had ordered Kuvo back to his country; Kundakolo "grasped the witch" and found Kuvo in the state of *eri*: "I was angry with the chief," confessed the man, "I smote him (*ñge manja panya*), here is a ring for you." Kunda took it and was mum; unfortunately someone else betrayed Kuvo, who was killed by Makele of Karivara. The other *eri* mentioned are Kapanjama, Regavuru and Laminda, the latter two women. Kapu of Kumbokota can also do the "grasping of the witch;" his method is described by Keana: Kapu's approach is unperceived by the *eri* because Kapu's *tambu* "shuts the eye of the *eri*"; he seizes the madman and gives him a box on both ears; the *eri* returns to his senses ("he savvy"), and cries and promises Kapu money if he will not tell, otherwise Kapu will denounce him.

Death was the usual penalty for witchcraft. Kapanjama was killed in Panakoñgu, Karivara, after revealing the *penupenu*. A woman of Choiseul, called Papa, was thrown into the sea at Kusuri, Simbo, and then clubbed.

[1] You stop, you no die, you big master, you strong, you high, altogether go down a little bit. Why you die? you strong, you die.

[2] *Mu tavagigala ago, mu ke varivamate ago, mu ke mbi.*

The other witches whose names are recorded are Pero and Maro, both slaves from Ysabel. Thus the greater number came from Choiseul, Ysabel, and Vella Lavella.

Tinomike.

Tinomike is a form of witchcraft in which a man hides a small ring (*ovala*), possibly other things also, in a house to make the owner die. We found no one who would own up to its practice. It is said that some put a *tinomike* in the threshold; if a thief steps over it he dies.

Ñanya was said to be able to detect the charm by means of a charm (*tambu*).

The men of old, to detect *tinomike*, held a dracæna and pointed it all round; when it pointed at the right place, the spirit made it quiver; the operator ran in that direction and buried the charm. Njiruviri does not know the prayer, but has an idea that they said, "Come let us take him" (*Aria ta tekua*, or *Aria ko ta tekua*). He knows, however, "a little bit," a charm to counteract, not to discover the *tinomike*; this is called "cooling" (*valomoso*); he spits *año* over the house and place where the *tinomike* lies, tears one dracæna leaf and one *año* leaf into little bits and gives to all the people of the place, and hangs two tips of *valomoso* on the neck of each. This he holds from Rembo. Pondo, Toka, Londu of Ove also know this *valomoso*.

Akeve.

Akeve is a charm (*tambu*) to prevent stealing. The following account is slightly obscure. A bunch of bananas, say, is hung over the *tambu* (shrine or charm ?) of *akeve*: if a man covets the bananas and wants to take one, he cannot, but dies. It used to be known in Karivara.

II.—Evil-Eye (*Njiama*).

A man who kills with looks is known as *njiama*. The people of Eddystone agree with those of Nduke and Roviana in tracing the origin of this evil-eye to Ulusage, the Eastern end of New Georgia.

By merely gazing at a man the *njiama* causes a throat disease, hæmorrhage and rapid death; he is said to eat a man's inside. Sometimes he attacks animals: two pigs bought for Siŋgala's Homing Feast (*Tundu*) died suddenly and unaccountably; their death was ascribed to a Luŋgan visitor whom we saw, and who was said to have the evil-eye.

The *njiama* as a rule is a "good man," perfectly normal and harmless. The evil influence is fitful. For his power to kill is dependent upon a *tomate njiama*, or spirit of a deceased *njiama*: this spirit walks about the bush and eats away the throat of men, causing them to vomit blood. If a man with the evil-eye has a spite and wishes to satisfy it he goes into a trance exactly like Kundaite at the *Londu* ceremony, and can be heard conversing with his familiar spirit; then he becomes "bad." Before the exercise of his evil-eye he feels tired and sleepy, has a headache and fever, his eyeballs wander, seeing which men avoid him.

Miraculous powers are ascribed to him; he can change into a fish if he wants to bathe: he can turn into any kind of bird and thus transport himself rapidly to the place where he wants to kill: a man who leaves him behind in one hamlet is surprised on reaching the next to find him waiting there. With a look he kills fish, brings down coco-nuts, fells trees: he can eat dynamite as another would eat sugar, but otherwise his diet is quite normal. Such, at least, are the reports they have heard in Roviana.

In former days they were got rid of with the club; now they must tolerate them or use stratagems. Not more than two years before our visit, Napata of Mbanyata earned this evil reputation in Eddystone; he had two large frigate birds tattooed on his chest which frightened people; besides, the men of Karivara and Simbo saw him fly; Pata, too, fell ill, "his inside rotted," and he attributed it to his refusing some biscuits to Napata. To make things worse, Samu's daughter fell in love with him and married him despite her father. Samu, however, was determined that his daughter should not breed children with the evil-eye, so he with others persuaded Napata to go with them to Gizo to fetch back a new boat: when they got there they left him ashore and hurried home.

Another case was Rovesene, also of Mbanyata, who compassed the death of Muke-Mbelañono. Njiruviri and Njoni declared at first that the evil-eye was extinct in Eddystone, though abundant in Ulusage, Mbanyata and Roviana. As a matter of fact, Pandanjiru, our interpreter, had a widespread reputation for the evil-eye; he was well known as such in Roviana, and the mere mention of his name in Nduke called forth the remark that he killed with his eyes. (Pl. XXIV, Figs. 1 and 2.)

A certain winged insect called *putaputamboe* is considered to be *njiama*. It bites and eats a bit of men's skin, and makes them ill; if it settles on a man's throat he dies—at any rate, they have been told so by visitors from Ulusage; it is a "fashion belong Roviana," but they do not think it holds of Eddystone.

There is a kind of *pasapasa* called *pasapasa njiama*.

III.—Medicine.

Eddystone Islanders show that they do not wish their coco-nuts or areca-nuts to be touched, by tying leaves or other objects to one of the trees or to a stick planted in the ground. These leaves are known as *kenjo*. Before helping himself to another man's nuts a native always looks round to make sure they are not so protected. Anyone who disregards the taboo will fall ill or die; each taboo is associated with some specific illness or mode of death. If the owner himself wishes to pick his nuts he must either remove the taboo, or, leaving the taboo, treat the nuts so that he may eat with impunity. If a man fall ill, the man who owns the taboo which causes that kind of disease can also cure it. Thus the knowledge of a taboo or *kenjo* involves four different charms; the setting up (*vaturua kenjo*), the "driving away" of the disease from the nuts (*iru sao*), the taking down (*vagorea kenjo*), the cure (*salaña*).

We collected a large number of such charms. I will describe one in detail; the rest will be given in brief recipes. The "driving away" was not discovered till late in our stay.

Ñavele is a cough often, if not always, accompanied by fever. It also includes a cold in the head. It is associated with *ave*, epidemics. Kundakolo knows the charms for this ailment; they are known as *kenjo ñavele*.

To set up this taboo Kunda plucks (*rombotia*) four *vua* of *kava kuruvete*. *Vua* properly means fruit, but it is also applied to blossoms, or, at least, to flower buds; it is not clear what is meant, as a rule. Besides the *kuruvete* he takes four *kava* (bunches ?) of *año*. *Kuruvete* and *año*, and also *pasapasa*, which does not appear here, are constantly associated in medicine, their common characteristic being a bitter tuberous root; *año* is probably turmeric. To these two sets of four bunches he adds four pairs of *vonjamboe* leaves, four of *nekaneka añge mate*; these pairs are technically known as *mbatundi*, or heads—that is, the pairs of leaves at the tip of a branch, or single leaves, as the case may be. I shall call them tips. He binds all these leaves and blossoms to a tree with a creeper called *oga*. While he does so he says: "This taboo I tie, be propitious, thou taboo here; the man who eats it let him cough, let him have rheum, and let him die, and let me throw him away into the sea; I am angry on account of my taboo which they eat; so be thou propitious." (LVII (*a*).)[1]

If Kunda wishes to eat his own nuts he must remove the taboo; there is no other way. To do so he strokes the taboo with four leaves of *pepeu*, an operation technically known as *ñgula*, saying: "I stroke away; go to the shrine, thou taboo." (LVII (*b*).) By *kenjo* in this prayer is meant the spirit of the taboo, as will be seen by other examples.

To heal the disease Kunda takes four tips of *pilisiu* and four of *moe*, wraps them in a dracæna, warms them over the fire, and applies them to the neck; this fomentation is called *pua*, and Kunda accompanies it with the following words: "I foment the cough, be effective, thou fomentation here; depart, thou cough, depart, thou rheum; cease, belly-ache; cease, headache; let this man live; let the man eat; let this man drink; let this man chew betel; let this man sleep; let this man bathe; let this man be cool; let this man go about, and let him live oh!" (LVII (*c*).) Kunda then kneads the belly: this is called *monyo*. He takes a creeper called *ekeki* and ties it over the left shoulder and under the right arm: this is called "to put on the neck on the right side" (*vapakua kali matua*). He next takes two tubers of *pasapasa*, one called *njule ave*, the other *ñgora ave*. Presumably these are names he gives to the tubers, but it is possible they are varieties of *pasapasa*; the patient bites a bit off each and chews it. A tuber of *kuruvete* is administered in the same way; Kunda chews a tuber of *año mboso lau* and spits it over the patient, an operation called *kusurunia*.

[1] See Texts at the end of this paper (p. 264).

The above *kenjo* may serve as a model for all. There are small variations. The leaves of the taboo are usually bound to a tree with the tip downwards (Pl. XXIV, Fig. 3), but sometimes a forked stick or "post" (*pakepake*) is stuck in the ground, and the leaves are laid horizontally in the fork. In taking down the taboo is usually stroked first, but it must be explained that the word *ŋgula* really covers actions which should be described by different terms: stroking and rubbing, either the taboo is swept with some leaves, or it is gently rubbed or caressed in one direction only with some root or with bark scrapings. The stroking is, with about three exceptions, always downwards.

The word *salaña* is rendered in pidgin as "make him"; in Nduke it actually means "to make," but in Eddystone I have only noted it in a medical sense. The leaves and other objects used in treatment are called *potana*. The chief methods are stroking and massage, as described. Leaves are sometimes hung on the neck; these are called *vovonja*. The leaves are usually picked in pairs from the tip of a branch and placed astraddle on a string tied round the neck; long, single leaves, like that of dracæna, are folded or split. The word *liona* is sometimes used; it means the new leaves at the top of a plant; I shall translate it "shoot." For hanging leaves on the neck the same verb *pakua* or *vapakua* is used as for putting on a belt; to the native who knows whether the plant is a creeper or not there can be no ambiguity, but for us there must be some doubt when the plant is unknown. A creeper so put on is called *raŋgoso*; this usually refers to a belt passed over the shoulder, but it may also refer to a girdle round the waist, in which case the word *ndoko* is also used. The natives insist that a belt always "belong right side, no belong left side," counting the side where it passes under the arm; as a matter of fact, a double belt is sometimes used, one right and one left. After massage the operator usually blows on his hands. If *pasapasa*, *año*, and *kuruvete* are used, both the leech and the patient generally chew some; after chewing the leech often puffs it out so that it spreads over the patient. The three roots are also used for rubbing on the belly; this is called "cooling" (*vaimbu*). It is not clear whether "cooling" is merely massage from the point of view of its results, or whether there is a slight difference in technique between massage and cooling.

Early in our stay we got hold of the word *varavara*, which means prayer, and which we took to describe the words used when setting up and taking down a taboo, or when treating a patient; as usual, the natives fell in with our ways and used the word to suit us; it was not till my third visit that Keana enlightened me on the point, and explained that there were *pito* and *varavara*: "Long fellow he speak, he *varavara*; s'pose he short fellow, he *pito*"; and again, "*Varavara* long fellow, plenty thing he stop." The "talk belong *varavara*" as opposed to the "talk belong man" is left-handed (*vamairi*). Undoubted cases of *varavara* are the "Speaking over the sacred pudding" and the "Prayer at the removal of the taboo at the skull house." They are characterized by great length, figurative and obscure language;

moreover, there is a set form of words which is carefully learnt by heart. Most of the prayers used in connection with *kenjo* are short and simple, and appear to be impromptu: an informant would never repeat it exactly the same twice running. *Pito* means "to speak."

Kunda's cough *kenjo* does not include a "driving away." I first became aware of such a charm on seeing it performed by Njiruviri. He wanted some areca nuts and betel leaves belonging to a kinsman, so he picked the fruit and stroked it with leaves of *penja* several times, saying: "It is not theft; I want to eat thee, so do not be angry; go to your taboo-sign; be not resentful." (LVIII.) The taboo in question was Purana's *londugugusu*. The charm, as I have said, is called *iru sao*; *iru* is to extend the arm as in striking, and *sao* means far.

A patient usually has to observe certain prohibitions, the commonest being that he may not eat domestic betel or areca, but only the wild varieties, and that he may not bathe or put lime on the head.

The treatment usually lasts four days; usually it is omitted on one of the four days; that day is left to the spirits (*tomate*); this I shall express by the formula $3 + 1$; as a rule, if not always, the day omitted is the third; when this is definitely known to be the case I shall write $2 + 1 + 1$. Some cases can only be carried out in the last four days of the moon, and may be repeated on four successive moons.

I shall give, as far as possible, the nature of each disease, but it must not be imagined that the natives have an accurate diagnosis; the treatment is addressed rather to a particular spirit than to a particular disease, and the same man may be treated with a variety of cures till one happens to act. Thus one of our interpreters suffering from pneumonia had a large number of different charms performed upon him.

Headache (Mbatu pata).

Owner: Nina Tundu. Eddystone style. Symptoms: headache; it was described as a boil (*mboño*) in the head, but probably the term *mboño* is used of any throbbing pain like that of an abscess.

Setting up: a long bit of the *rara* creeper cut in four and four leaves of *niniru* bound round with *lave*, placed in a forked stick and tied with *lavelave*. No prayer. If it fails to keep away thieves a piece of *pusi*, a creeper, is cut in four and added with the words: "They eat stealthily my coco-nuts; be propitious, thou taboo, and catch the man." (LIX (*a*).)

Driving away: stroking with two tips of *nyou*, saying: "Come down, thou *kenjo*, and go to your *kenjo*; I am hungry; I want to eat, and I do not steal." (LIX (*b*).)

Removal: stroking with two leaves of *nyou*, saying: "Let me take down, thou, the *kenjo* here, come down, depart, and let me eat the coco-nuts; let me take thee down aright." (LIX (*c*).)

Treatment: this was witnessed. Nina pressed Atu's head with both hands, blew on them, pressed the poll and passed his hands over the head, caught the scruff of the neck, and blew on his hands, repeating this three times again, making four. Then he stroked the poll and nape four times with two leaves of *nyou*, saying: "Thou Motu, thou Vae, thou Suna, I pray left-handedly; make it right-handed, thou." (LIX (*d*).) He addressed the three persons as *kolo*, which was explained as ceremonial language (talk belong *varavara*) for "thou." The leaves used in stroking were hung at the back of the neck, not on the chest. Nina took a bundle of sticks of *niniru*; some he wrapped in a leaf, any leaf will do, and stuck in the thatch; the rest were put into the fire along with some coral called *laňe* (? *laŋge*); the patient held her head over it for a while. The treatment was quite informal, without any solemnity; it is repeated on four successive days with variations; 2nd, stroking with *tolokeka* instead of *nyou*; 3rd, eating the fruit of *ugugu* instead of stroking; 4th, belt and pendant of *tolokeka* instead of stroking.

Suna of Karivara, the same as is mentioned in the prayer, taught Nina for a fee of four arm rings; he was "father" to Nina. No shrine.

Madness (*Kenjo tuturu*).

Pandaŋgeto's.

Setting up: two sticks of *njamiga* planted like stacked rifles and bayonet; alongside of these, where they cross, he ties two short sticks of *nekolo* (? *ekolo*), making four in all; then four sticks of *paripari*, four of *piku*, four of *ŋgoŋgu*, four of *kalu tuturu* (madman's hair); then four sprays of *piku* (*vuana piku*) are tied horizontally to the long sticks below the point where they cross; two leaves of *akaku* are made into two rings and tied one on each side of the point of intersection, "like the ears of a man"; a bunch of wild areca called *ekolo* is hung tip downwards from the crossing; also fruit of *pirumolu* and of *veo* (text-fig. 1 is a diagram). It must be remembered that madmen are supposed to be deaf. The words used are: "Thou village of Volavola oh! thou village of Varo oh! thou village of Rupe leva oh! thou village of Loko oh! thou village of Humbolo oh! embark upon this *kenjo*." (LX (*a*).)

Driving away: stroking with four leaves of *kundala*, saying: "Come down, depart and let me eat; do not resent, do not be angry." (LX (*b*).)

Removal: stroking with four *kundala* leaves. Spitting on those who eat of the fruit with *mamisina*, a kind of *pasapasa*, the stem of the same is put round the neck.

Cure: spitting with *pasapasa* on both ears; the *pasapasa* is then sniffed; stroking from the head downward with four tips of *paripari*, four of *ululu tuturu*, four of *geliŋgili*, four *aroso muŋgumuŋgu* (bush creeper) with the words: "Come down and depart, you mad spirits, and do not beset him." (LX (*c*).) He takes a leaf of dracæna, rests the stem on the patient's hair above the forehead, and tears it in twain lengthwise, but not right through; he then places the leaves used in stroking akimbo in the fork of the split dracæna, which is then tied round the neck with the

leaves in front. The notes do not make it quite clear whether the stroking takes place after or before placing the leaves on the dracæna.

Period : 3 + 1, once just before sunset, twice in the morning.

Restrictions : none. Teacher : Penu.

Note the use of plants called after *tuturu*, of wild varieties (*ekolo*), and others suggesting wildness or the bush (*pirumolu, aroso muŋgumuŋgu*).

Venereal Diseases.

Venereal diseases are known by the general name of *tuti varieti*, or "sequels of coitus." They can arise, however, by other ways, as is proved by the existence of *kenjo* producing those diseases.

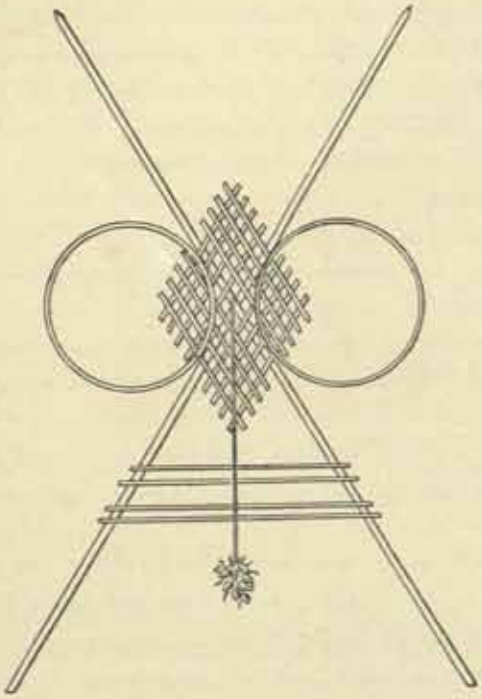


FIG. 1.—MADNESS TABOO (DIAGRAM).

In *Ponjetia* (*ponje*, sore on the penis ; *tia*, belly) there is a soreness and hardness of the belly, evil-smelling urine, painful micturition with a burning sensation ; the penis is thick, swollen and hard "like wood," sores break out inside and externally.

The other diseases mentioned were said to be the same as *ponjetia*, but the word "same" is not used with anything like the same accuracy by the native as ourselves, and he is also very apt to use it when he knows there is a difference but cannot define it.

Mimitamago (*mimi*, urine) is characterized by a burning sensation, a bad smell, and the small jet of urine in micturition.

Korotolagu differs from *ponjetia* only in so far as the inside is sore and is "broken" (*koroto*, broken, like a rope; *lagu*, entrails). About *mimitalagu* I have no information; possibly it is the same as *mimitamago*, since the name *korotomago* occurs as well as *korotolagu*.

Nawaŋge is an internal disease, but not venereal; its symptoms are pulsation in the belly and an evil smell.

Here is Njiruviri's *kenjo ponjetia*.

Setting up: four *paripari*, four *kiti*, four *kenjokenjo*, four *mbombarata*, four *vuvu* spitted on the vein of a coco-nut leaf, the whole tied with *lave* to an unsplit stick; add eight *njanjaba*. Prayer: "The man who eats, let his penis be broken, his testicles covered with sores, his entrails sundered, his urine . . ." (LXI (*a*).)

Removal: two *pepeu* tucked in the waist on either side; stroking with two leaves of another kind of *pepeu*; friction on the stomach with *año*; the patient eats *año*. Prayer: "Come down and depart, thou *kenjo*, and let me take thee down." (LXI (*b*).)

Driving away: with two *pepeu* in either hand. "Let me sweep thee away, *kenjo*, go to thy *kenjo*: I am not stealing; I have swept thee away correctly." (LXI (*c*).)

Treatment: missing.

Tumour (*Kenjo mamandara*).

Kundakolo's.

Symptoms: swelling in the belly caused by a congestion of the blood.

Setting up: four dracæna and four *paripari* tied to a tree. "This is the *kenjo*; be favourable, you people of Gelikumbolo; be favourable, thou Louparigo; be favourable thou, the *vambana*; be favourable, thou Vao; be favourable, thou Noevonja; be favourable, thou, the Mbirotupe; and kill the man who eats the *kenjo*." (LXII (*a*).)

Driving away: none.

Removal: friction on the belly with four leaves of *mburape* and four pounded leaves of *lomolomoso*: "Come down, *kenjo* here, and go to thy shrine; go and sit down in your place and do not be angry with us, but depart." (LXII (*b*).)

Treatment: this was related, then demonstrated at an interval of about a month; the two unfortunately have nothing in common, but, as they do not contradict each other, it is quite possible that they complete each other. Kundakolo, as we shall often have occasion to remark, had a failing memory and was very apt to get confused; or there may be two methods from two different sources. This is the demonstration as performed on the interpreter: friction (? *ŋgula*) with four tips of *ruku livo* rumpled (*nanja*) and with a flowering sprig of *ŋgula*: the friction is across the stomach and accompanied by words; then stroking with *vonjamboe* across the back of the shoulders after holding it a short time over the brow (? *pupula*); pendant on the chest with the same; dose of *año*; the doctor himself does not eat.

Now for the narrative: leaves of *lomolomoso* are pounded, watered and squeezed into a leaf of *mbupa*: the juice is drunk by the patient. Massage of the stomach.

whereupon blood comes out in the urine and excrements. Prayer: I give this man drink, be shattered tumour, be splintered, depart tumour, let this man live; go to thy relics, to thy shrine; they who held it before, go and sit with them and be favourable and let this man live oh; let him bathe in the sea, let him put lime on his head, mark his face." (LXII (*c*).)

Restrictions: mature coco-nuts, bananas, sweet yams, *neka*, pudding, pork, bonito, fish, sugar cane, bathing, lime.

Kunda learned this from a "mother."

Wasting Sickness (Kenjo kita).

Kundakolo's.

Setting up: five stems of a herb called *mbetambeta*, five twigs of *ogogo tulusu* tied tip downwards to the tree. Each *mbetambeta* bears a proper name: Ndaembañara, Galagala (two stones, one in Koka and one in Ndaembañara); Reambañara, Opokita (two orange-marked shell rings in Panambusa); Lindambañara (a man of valour among the Kita); Rakiana (a common Kita, *tinoni na Kita*). The *ogogo tulusu* are also named: Galasava, Piruku rañgarañga (two chiefs of the Kita); Siakana, Kolupugala (again two of their *varani* or men of valour); the fifth is missing. These are a selection from the forty Kita that live in Mbetasise, Karivara; in their abode no man sets foot. The Kita shrine was illustrated by Kunda; it was then explained that *Piruku Rañgarañga* meant "Chest like a vein of the coco-nut leaf": *rakiana* is applied to a man who is "all bone, he got no meat." *Galagala* is spirit or ghost.

Prayer: "This is the *kenjo*; be propitious; the man who eats thee, let him pine away, let him be thin, and be nothing but bones, and let him die, and may I throw him away into the sea." (LXIII (*a*).)

Driving away: none.

Removal: pendant of *pepeu*; the fruit of *rupe raro* is eaten; shoulder belt of *mamaroko*; girdle of *olotondoro*, *oga* and *kou*, stroking four tips of *raro*.

Prayer: "Come down, people of Mbetasise, come down, ghostly people, come down people of Rokana, come down people of Ndaembañara, mine is the *kenjo*, do not be cross, scold not, come down and depart; have no lice, have no sores, have no consumption, have no itch, do not scratch, come down and depart, and let me eat areca nut, let me eat betel-leaf." (LXIII (*b*).)

Treatment: stroking with four leaves of a plant like *piro*, but shorter. Prayer: "I treat with *lumana* the man here; kill the wasting sickness, and let me . . . it away. Let this man live, let this man be big, let him be like the porpoise in the sea, the *pupuleu* in the brook, the bonito in the sea, the narval (?) in the sea." (LXIII (*c*).) Pendant of *pepeu*, *rupe raro*; girdle of *oga*, *olotondoro*, *kou*, *varikero*; shoulder-belt of *mamaroko*. The girdle is put on with the words: "Be propitious to this man, put on the girdle. Korapa mbañara, Minja mbañara, Mbariki, Kavuru mbañara,

Savena, Suna, Mbukulu, you who held the cure." (LXIII (*d*).) Korapa mbañara was once a big chief in Karivara; Suna and Mbukulu died some twenty years ago.

Restrictions: none.

Teacher: Mbola.

K. Rarasa.

Setting up: a stick of *kiukoñgolo*, which turns black when it rots and a leaf of *varikero* in a forked stick tied round with *oga*. . . . "Be favourable, thou *kenjo*, the man who eats it, who climbs, be favourable, and let him mould and be mere bones, the man who eats thee." (LXIV (*a*).)

Driving away: none, because it is a bad *kenjo* (*kenjo kikerina*), "he savvy bite" (? fight).

Removal: "I remove the taboo and let me take it down and be favourable to me, thou, and I take thee down." (LXIV (*b*).)

Cure: girdle of two *gwaro* and one *mbako kendaka*: "I put on the girdle, be favourable, thou, girdle, let him be stout, let him be healthy." (LXIV (*c*).) There is no stroking, no collar or pendant.

Puso, nJoni's wife, who supplied the information, possesses a whale's tooth connected with the charm: it is not used, but simply kept; it is dangerous; even her husband does not touch it for fear "all meat he go away, only bone he stop." This tooth has been inherited through many generations; the last to hold it before was Widow Lea.

Rank Smell (*Mbosi*).

Mbosi is a peculiar smell some men have which makes them fail in fishing, as the fish dislike the odour. It is connected with an aversion for the female sex, but it is not clear whether the connection is constant or habitual.

Setting up: *piro* tied to the tree without prayer.

Taking down: stroking with four (?) tips of the top of the *vonjamboe* (*mbatu lio vonjamboe*).

Driving away: four tips of *vonja poki*.

Cure: none. The owner Pandañgeto declared there was no prayer.

Mbage.

Pinju "savvy *mbage*," that is, a soreness in the legs that goes up the backside to the neck and prevents sleep.

Setting up: four *rumbo* and four large *kanarium* leaves tied to the tree, with the words: "I jump up, so catch, *mbage*, the man who steals it, let his body be sore." (LXIV, (1) (*a*).)

Driving away: with *piro*: "Brush the fruit, I want to eat, so let me eat." (LXIV, (1) (*b*).)

Removal: brushing (*iru*) with one *piro* stem and the words: "Brush down the *kenjo* and let it be cool, and let it cease, and let me climb the areca palm." (LXIV, (1) (*c*).)

Treatment: fomentation with four tips of *rukulivo* wrapped in four leaves of *njiri*: the dracæna leaves are placed on each other crosswise alternately; stroking with both hands from the head downwards with scrapings of *oruku* leaves. Prayer: "Stroke away the *mbage*, and let him live, may this man cease, thus I do (or, say I), cease thou *mbage*." (LXIV, (1) (*d*).)

Prolapsus ani (*Mbeu*).

Sogaviri described this *kenjo*.

Setting up: leaves of *mbembeu*, *sakita* tied to the tree; if ineffective it is reinforced with *mbembeu* nut put inside the leaves; on both occasions the following words are pronounced: "The man who eats the forbidden nuts, let his rectum come out at the anus, let it drag on the ground, and let the man be afraid." (LXV (*a*).)

Driving away: none.

Removal: rubbing with *ugugu* leaf. Prayer: "Come down thou *kenjo* here, and do not catch the man, and let me take thee down." (LXV (*b*).)

Treatment: stroking four times with the skin of *tondoro from below upwards*. Girdle of *tondoro*; four leaves of *opimata* placed on a piece of undyed bark-cloth of the kind called *ŋgoru*: this is laid on the hand and applied to the rectum which is raised and retires. If this is unavailing he takes a small bow specially made and lightly shoots the rectum with an arrow tipped with the fruit (or bloom) of *ugugu*; the rectum is afraid (*sic*) and retreats. In so doing he says: "I shall hit this rectum, let it go up again into his belly." (LXV (*c*).)

There is in nJeligomo an altar called *patu mbeu*, but no relics (*tomate*) are there preserved, nor are burnt offerings made. We have seen nothing there but overgrown stones with what may have once been stelæ (*ŋgele*).

Rheumatism (*Tuva*).

Tuva is possibly rheumatism; it causes swellings at the joints and cripples the limbs. It was described as "hot bone."

Rai's method. Setting up: leaves of *njilatoño*, *njamiga*, *mbombarata*, *vanjerere*, *pou* tied to the tree with *lave*: "Be favourable, ye *kenjo*, assail in the joints, in the bones, in the hands, in the legs." (LXVI (*a*).)

Driving away: with *mbupa* and *kundala*. Prayer: "Be favourable, thou spirit, go to thy *kenjo*, be not angry, be not resentful, I am (not) stealing." (LXVI (*b*).)

Removal: stroking with the skin of *vaiovana*; dose of *año* and *pasapasa*; crossed shoulder-belt of *loŋgoloŋgo*; rubbing with *mbupa* and *kundala*. Prayer: "Come down and depart, you spirits of the *kenjo*, you rheumatism." (LXVI (*c*).)

Treatment: fomentation on the painful part with *suva* leaf inside a *njiri* leaf; crossed shoulder-belt of *loŋgoloŋgo*; pendant of *undundalou*. Words accompanying the fomentation: "Depart, thou rheumatism, and let this man live." (LXVI (*d*).)

There is a shrine in Ombulu connected with rheumatism, but it is now abandoned because Rai does not know the rites as well as his "father." There used to be an

image there of the rheumatic spirit. Rai made one to replace it, but fearing lest the disease should attack him if he set it up on the altar, he kept it at home, and eventually sold it to us. Rai could not give a reason for the large penis and absence of foreskin; the arms are wanting simply because Rai had not the skill to make them.

There is a Lungan method. mBiniti of Narovo, having purchased it and anxious to test it, struck a coco palm with his hand: the leaves were contorted, and the tree became barren.

No one knew mBiniti's charm, but Pepo, a Lungan, disclosed his own, which enjoys a certain reputation. We possess no account of the *kenjo* proper, but only of the cure as it had been performed upon Wavu.

Fumigation with a wood of which he would not tell the name in the interpreter's presence. Prayer: "Let Wavu live, ye spirits, let there be no swelling, let not his belly ache." (LXVI (*e*).) Shoulder-belt. Dose of *año*; spitting of *año* over the body; stroking from the shoulder to the chest: "I stroke him, let me make his body whole, let the pain cease, let him be well." (LXVI (*f*).)

Taboos: sexual intercourse for the three months which the treatment lasts; lime on the head, pudding, small *kanarium* (the large nut is allowed), pig, domestic areca-nut and betel-leaf. Wavu, however, differs from his physician; he denied himself pig, cuscus, pudding, *ande*, small *kanarium*, betel-mixture. Pepo expressly declared that *ande* was allowed, but it was the season of the small *kanarium*, when the latter would generally be mixed with the *ande*.

Period: 2 + 1 + 1. It is repeated three months: at the end of that time, Wavu made one large and one small pudding; the small one is eaten in Wavu's house by his family, but not himself, after a preliminary offering to the dead with the prayer: "Yours, the spirits, make Wavu well; let there be no swelling, let his belly be eased, let it not ache." (LXVI (*g*).) There is no obligation for every one to eat of it. The big pudding was taken home by Pepo and distributed among the people of Olepeniŋga; some of it was offered up at his house with the same prayer as the small pudding.

Pepo professes to have forgotten the name of the man from whom he obtained the charm, as he left Luŋga when a boy; but he remembers the price of the *kenjo* to have been two large rings, one *mbakia*, one arm-ring, one ovala, one large pudding with which his instructor made sacrifice.

Dizziness (*Kirenge*).

Njimi's. Dizziness or epilepsy. (Pl. XXIII, Fig. 3.)

Setting up: four leaves of *kilapa*, four sticks of *pike*, four sticks of *sakita*, four sticks of *mbombosi*, two *lanje* (a stinging coral) picked up with wooden tongs, two *patu tae* (a stinging stone), likewise picked up with tongs, a butterfly called *kireŋge*, all put in a forked stick. The prayer runs: "This is yours, you the spirits of the *kenjo*, this yours, four old women, four old women who knew the *kenjo*, ye four old

women in mBakia; be favourable, Noemali, be favourable Kiambakia. Tupombakia, Saemali, Mbukumenia, grant my prayer against the man who steals the *kenjo*, both *lipa*, grant my prayer." (LXVII (*a*).) I do not know wha tthe *lipa*, a kind of fish, refers to. The first four names are those of the four old women who owned the *kenjo* of old, while the fifth is that of an epileptic spirit (*tomate kirenge*).

Driving away: with four tips of *ngou*. "I sweep it down to throw it away; do not return to this man, go away to thy mother, go away to thy father, go away for ever." (LXVII (*b*).)

Removal: the *kenjo* is thrown away in an unfrequented spot, as anyone treading on it would die; dose of buds (*vonavonana*) of *pike liñgiti*, a different kind of *pike* from that used in setting up. Prayer: "Depart and go up to the sky, do not remain on earth, thou spirit of the *kenjo*, do not come back again, by and by return upon the head of the man who gives me an arm ring; the man who does not give me one look after him, thou spirit of the *kenjo*, the man who eats thee, thou my *kenjo*; depart, be cooled in the fresh water, depart looking to the sun, depart looking at the sky, go up and adhere to the thunder that sounds in the sky; what are you doing? Go back, go not to return, depart for ever, thou." (LXVII (*c*).) Parts of the prayer are uncertain; it was said to be "*varavara* talk," not the language of man.

Treatment: this is imperfectly recorded, as nJimi, like many others, gave a long list of names of plants, and when asked about the method of using them protested that the same thing was being asked twice. Stroking from the head downwards with *lumutu*, a freshwater alga, the scrapings of *tita* wood, soot, four tips of *ngou*; it is not clear from the account whether the four are used together or separately; at any rate, the following prayer goes with the *lumutu*: "Stroke away, stroke away, cease thou, cease, let the man live, do not return again, they have given me a good ring." (LXVII (*d*).) Fumigation with two *oñgoñgo* leaves wrapped in four skins of the plant *kolokolombañara*, which in its turn is wrapped in a dracæna leaf: in this case the fumigation is done by holding the warm plant to the patient's nose, who sniffs it, while the following words are uttered: "Be favourable thou, thou ancient woman, thou new spirit, ye four ancient women." (LXVII (*e*).) Collar (*pakua*) of *lomolomoso*: "Be favourable thou, favour thisman, make him live." (LXVII (*f*).) Fillet round the head with the skin of *ugugu*; this is afterwards taken off and replaced by two skins of a small shrub called *pilisiu* with the scrapings of one stick of *njanjala* inside. Girdle of four *clokale*; shoulder-belt of two *mamaroko*. Application to the head of four *vua poke* (? *poki*) *año* on each temple with the words: "Be gracious and let the epilepsy cease." (LXVII (*g*).) Application to the head of four tips of *ugugu* and four leaves of *mbupa*. A stick of *mbupa* is scraped and nJimi, then turning his back to the patient, throws it over his shoulders with both hands; he may not look again upon the patient, but walks straight out.

If his client tries to palm off on him a bad ring, he takes a stem of *piro*, wrings it and leaves it on the beach, where the tide comes and wets it; this means death to

the patient, unless a good ring is timely given for the bad one: if so, the *piro* is taken back to the bush. When he related this charm, nJimi had just used the threat against Matekolo, who had given him a bad ring to cure his daughter. The fee is paid in advance.

Restrictions: coco-nut, *iru* (a crab), *gave* (another crab), anything cooked in a saucepan, bread fruit, the small *kanarium*, pork, pudding, domestic betel-leaf and areca-nut, sweet yams, banana, lime on the head, bathing. Period 3 + 1 days at the waning of the moon; four months. At the end no pudding (*manji*) is presented by the patient, but nJimi puts four small puddings into the fire and four small ones into the thatch with the words: "Here is the pudding for you the epileptic spirits, be favourable, let this man go for ever, let me not return hereafter." (LXVII (*h*).)

nJimi learned this *kenjo* from his "mother" Londu for a fee of one shell ring, one pudding, one bunch of betel-nut, one bundle of betel-leaf, one small arm-ring made of *mbulau*; further, he provided one small pudding for a burnt-offering to the spirits; in making the offering Londu used these words: "This is yours, old women, thou who didst hold it, thou who didst hand over to me this charm." (LXVII (*i*).) She then put some of the pudding into the thatch.

Paro.

Paro is a luminous spirit; the effects of his attacks appear as a large abscess known in Roviana as *moŋgo Paro.*

Setting up: one dracæna made into a loop and stuck into a forked stick of *erereka*, one fruit of *putu* in a forked stick of *ovove*. The same words are used for each: "Set up the *kenjo*, be favourable, this *kenjo*, hit the man." (LXVIII (*a*).)

Driving away with dracæna: "Come down thou Paro, and depart and let me eat the coco-nuts, and let me eat the mature nuts, and let me climb the areca palm, and let me take the betel-leaf, go and depart." (LXVIII (*b*).)

Removal: *año* is rubbed on the stick with the words: "Depart Paro, do not abide here, but depart." (LXVIII (*c*).) Dose of *año*; the stick is removed.

Cure: friction of *año* over the boil; stroking four times with rumpled leaves of *nyou*; pendant of *nyou*; presumably it is at this stage that the prayer is uttered: "I treat this man, the pendant, the pendant, the pendant, the pendant, let him be eased, come down and depart, Paro, come down, Aŋge Mate, come down, Mateana, come down, Tambu Koma, come down, Mad Spirit, come down, haunting spirit." (LXVIII (*d*).) Dose of tips of *riro opopeoro*, both patient and leech eat; pendant of tips of *opopeoro*, *kindova*, *mbuni*, *valioloŋge* and young shoots of *mbirimbiri*. After treatment the sick man presents Sulatava with a pudding. Teacher: Ñgeluvuru; fee: one large ring, two arm-rings.

With Sulutava's own version of his *kenjo* it is interesting to compare the *kenjo* of Veo of Roviana, which was bought from Sulutava: the *kenjo* as given by the latter is probably very imperfect, as it was taken down at an early stage and with little

experience: notwithstanding, it looks as if the discrepancies must be due to something more—to lapse of memory or contamination with other *kenjo*, or improvements imagined by Veo. Here is Veo's account, with the names and prayers in Rovianese.

Setting up: leaves of *ndandau, varilaŋge, numbinumbi ine*[1], *riro* in a stick of *numbinumbi ine*: "I set up the *kenjo*, the man who comes and steals, assail him." (LXVIII (*e*).)

Removal: a young nut of the "Green coco palm" (*ŋohara mbuma*) at the stage when the milk is fit to drink, but the flesh is not yet formed (*supulopa*), is poured over the *kenjo* with the words: "I drench the *kenjo* to make it cool and cold, let it not attack, come down, depart." (LXVIII (*f*).)

Treatment: friction (*tavusia*) with *aŋo* on the boil: "I rub the abscess, be light, come down and depart." (LXVIII (*g*).) Pendant of two dracæna (*zhovi*); crossed shoulder-belt of the skin of *matemate igana*. Period: 3 + 1 at any time of the month.

Mateana.

Mateana is a kind of shooting star; it causes an internal pain called *tagosoro*. nDomo places it exclusively in the belly, not in the hand, or leg, or head, or neck; in this he seems to differ from Taravai, who once demonstrated the treatment on my neck. Hita and Keana both identify *tagosoro* with the spirit in the sky (*tomate pa n'oka*), otherwise Mateana.

The following *kenjo* was related by the unwilling nJukili, so unwilling that the cure could not be obtained till one month after the *kenjo* proper.

Setting up: four branches of *kou* (? a shrub) stuck together in the ground before the tree and tied round with one *lave*: "Be favourable thou, the *kenjo* here, let the fish wound him, the stinging-ray pierce him, the kernel of the Brazilian plum pierce him; the vein of the ivory-nut palm pierce him, the *novu* pierce him, let this *kenjo* be favourable." (LXIX (*a*).) *Manania* means be favourable in respect of it: it we take to refer to the wounding.

Removal: scrapes a *piro* branch and strokes the *kenjo* with it: "I stroke down this *kenjo*, let it be cool." (LXIX (*b*).) The stick is put away where no one is likely to tread on it.

Driving away: four times with the top of a dracæna plant; the leaves are not counted: "I stroke this *kenjo* and let me eat the coco-nuts." (LXIX (*c*).)

Treatment: four tips of *mburape, pundala, paro, pepeu, pilisiu*; three of each are rumpled and used to stroke the patient; the fourth of each kind is used as pendant; stroking with four leaves of *vuvu* which are not used as pendant; shoulder belt of *mamaroko* and *ebeki*. Prayer (*pito*): "I treat this man, and let him live." (LXIX (*d*).)

nJukili paid Matemata of Ganoŋga one large ring and one arm-ring for the secret. We give the *kenjo* as that of Mateana because it was related when we asked for that

[1] Or *nombinombi ine*.

kenjo, but it is much more like a Ragomo than a Mateana, and there is nothing throughout to indicate that this is a *kenjo Mateana*. It is quite possible, however, that Mateana and Ragomo have become mixed up.

Taravai of Simbo possesses a genuine Mateana, but only the treatment is forthcoming. He demonstrated it on my neck, kneading and pinching the tendons in a painful manner: nJiruviri, who watched the process, observed that Taravai had "caught it," and in effect Taravai seized the flesh and pulled as if drawing something out, then blew upon his hands as if blowing something away; this was done several times, the following words being spoken: "Come out and depart, thou *Tagosoro* and let him live, and let him drink, and let him eat; let the man be eased." (LXIX (*e*).) He then gave a small piece of *año* to eat, chewed some himself and spat it on the right side of the neck and ears. *Pasapasa* is also used internally by the patient, but was not demonstrated, nor is it stated whether it is spat or not. Leaves of *mata kindava* were hung on the neck. Fee: one arm-ring. Taravai got it from Sulutava, who purchased it in Źava, Vella lavella; it is the "fashion" of Kumbokota and Źava.

Taravai's comments are theoretically interesting: he knows that the *tagosoro* is gone because he ceases to feel it: he blows on his hands because, as he puts it, "no good he stop here"; if he did not blow it away the pain would remain on his hands; when he spits or "blows" (*ivu*) the spirit, viz., Mateana, runs away.

Another fragment relates to nJiripele, who is like Mateana; he, too, produces *tagosoro*. Hita of Ove owns it. Friction (*vaimbu*) with *año* and *pasapasa*; the same are also spat; pendant of *mbembe*, *tui*, *riro*, *undapele*, *putu*, *mbirimbiri*; crossed shoulder-belt (*karu kali*) of *mamaroko*: Hita himself, as leech, wears these leaves as well as the patient. Prayer: "This man I treat, be favourable you spirits, thou nJiripele; let him live, let him not die." (LXIX (*f*).) Periods: 2 + 1 + 1. Two puddings are made, one large one for Hita, one small one for the patient.

The cure comes from Kumbokota; there is a shrine in Putu, Karivara (Pl. XXIII, Fig. 4.). We do not know whether there is any *kenjo* connected with it.

Murder (*Mboso lau*).

Mboso lau is the spirit of a man killed by his own countrymen, that is a murdered man. According to nJiruviri, there exists such a *kenjo*; but only the cure is known to Rembo, who taught it to nJiru.

Shoulder-belt of *mamaroko* on the left, and of *tuvutuvu pie* on the right; pendant of two pairs of *mburape*: nJiru then takes four *kiti* leaves and hides them behind his back as he stands outside; he advances stealthily, crouching and peering into the house: then he holds the leaves forward, the arm applied to the body, the forearm horizontal: the healing spirit wants to go and kill the *mboso lau*, explained nJiru; "*nJiri kakele ō*," calls out the leech, "*kela kakeleō, nJiri ovove, kela ovove, nJiri kambokua, kela kambokua.*" His hand trembles; it is the spirit that causes it.

"Come, let us kill the ghost" (*Aria ko ta vamatea na tomate*), he says, and rushes in, grabs the patient by the throat or testicles and rushes out at the other door, places the leaves on his palm and crushes them with a stone: blood is seen, sometimes teeth; they are the blood and teeth of the murdered spirit (*mboso lau*).

Presumably the belts and the pendant come last according to the usual practice, and they were mentioned last in the prefatory list of plants used, but having nothing particular to say about them, nJiru did not mention them again at the end of the detailed account.

Broken Jaw (*Moko ase*).

Piluku's: taught him by his "father," Kahara of Ganoŋga.

Setting up: *ase mborogo* (pig's jaw) tied to the tree: "Be favourable thou, thou the *kenjo* here, break the jaw, let the teeth drop, let the mouth rot." (LXX (*a*).)

Driving away: with wild dracæna (*njiri piru*): "Be favourable, thou the *kenjo* here, let him be eased, I say." (LXX (*b*).)

Removal: stroking with two *ruku livo* in each hand: "Come down, thou the *kenjo*, and depart, be not angry, do (not) attack the man." (LXX (*c*).)

Evil Eye (*Njiama*).

mBoka's: bought from ŋGile for one shell ring; one bunch of areca nut, one large pudding (so large one can put one's arms round it), and one small pudding to be offered up by ŋGile with a prayer; he further agreed to give ŋGile the first ten fees earned with it: he has now discharged his debt and keeps the fees for himself.

Setting up: one leaf of *alanjiri*, four of *paripari* in a forked stick. No prayer may be used, or all the people of that district would die and only beasts remain.

Driving away: none.

Removal: stroking with two *riro* and *mbirimbiri*: "Come down you, the *kenjo* here; wander upwards in the air." (LXXI (*a*).)

Treatment: pendant of four pairs of *nekaneka aŋge mate* and four of *paripari*; dose of *pasapasa* and spitting with the same; crossed shoulder-belts of *mamaroko*; prayer: "Be favourable, you spirits, let him live, let him be eased, this man, let him drink, let him eat." (LXXI (*b*).) Period: 3 + 1 at any timeof the month. Restrictions: none, but the possessor of the *kenjo* (*kotu kenjo*) may not kill snakes or centipedes.

Nareti of Narovo has learned a cure for the evil eye from his "father" Hega; but he does not know the *kenjo*, if there ever was one: Inhalation of *kuruvete*, friction with scrapings of a *vasaro* branch; prayer: "O Himi, O mBuka, O Suloga, Hega." (LXXI (*c*).) Himi is a relic, consisting of a small wicker frame with a small ring (*ovala*) tied to it and some hair inside; it hangs in Sogaviri's canoe house. Suloga inherited it and passed it on to Hega. Lalu, who used the *kuruvete* once as a preventive, says he had to turn away while sniffing it lest it should kill the others.

Belly-ache and Witchcraft (*Vitigi tia: Mba*).

There are a number of disorders known variously as aching (*vitigi*), belly-ache (*vitigi tia*), witchcraft (*mba*), witchcraft pains (*vitigi mba*). Though differently named,

all these *kenjo* appear to be much the same, and *vitigi* is often, if not always, a symptom of witchcraft. (Pl. XXIV, Fig. 3.)

Matekolo's *kenjo vitigi*.

Setting up : one leaf of *año*, four of *kuruvete*, four pairs of *vonjamboe* tied on the tree ; in the case of betel-leaf it is tied to a stick ; no doubt this is the universal practice, as the betel-plant has no trunk to tie the leaves to ; the leaves are tied stem upwards. Invocation (*pito*) : "This *kenjo*, if a man steal thee, attack him in the belly, and let the man have pain in his belly." (LXXII (*a*).)

Driving away : four times with one pair of wild dracæna (*njiri piru*) : "Brush thee away the betel-nut here, and let me eat thee." (LXXII (*b*).)

Removal : stroking with four pairs of *nyou*. Invocation : "I take thee, be cool, be cold, thou the *kenjo*, and let me take thee, and let me eat betel-nut." (LXXII (*c*).)

Treatment : this I can describe from eye-witness. After massage of the abdomen he holds four rumpled leaves of *mbupa* between the tips of the fingers, which he applies to the pit of the stomach, saying : "Stroke, stroke, stroke, stroke away, Leanambako, I stroke with Ñgohele, I stroke with Tuñge, I stroke with Rapo, I stroke with Kive, be ye favourable, Kive, to this child, let it not be ill, let it not be sick, let it live, let it bathe, let it put on lime, thus I do to the child." (LXXII (*d*).) Towards the end of this prayer he strokes the lower chest and the stomach, then he rubs the stomach with *año*, saying : "Charm, I charm the soreness, the witchcraft, I charm it away this day, and let it cease, let it dwindle ; thus I do to this soreness and let it cease." (LXXII (*e*).) He makes passes on both sides of the face four times ; then puts on a collar of *mamaroko*, and strokes the body from the head downwards with four pairs of *vonjamboe* leaves, saying (*pito*) : "You *vonjamboe*, spirits, *kuri*, let it cease." (LXXII (*f*).) He then hangs the *vonjamboe* on the neck, together with a leaf of *año*.

There is no shrine connected with this *kenjo* ; it comes from Rapo, "mother" to Matekolo.

Here is the same informant's witchcraft taboo (*k. mba*) :—

Setting up : a stem of *kuruvete* and *año* pulled up by the roots, and a branch of *vonjamboe* tied to the tree. Prayer : "Let me taboo this areca palm, the man who eats it, let him be sore in the belly, let him be ill, let him be sick, thus I do to this my *kenjo*." (LXXII (*g*).)

Driving away : with *njorutu, mbatu kunduru* : "I stroke the areca-nut, without taking down, let me stroke away." (LXXII (*h*).)

Removal : stroking with one pair of *mbupa* and one of *pepeu* : "I take down the *kenjo*, let it be cool, let it be cold, let it not attack men." (LXXII (*i*).)

Treatment : stroking with *año, pasapasa*, two pairs of *vonjamboe*, two pairs of *mbupa*, two pairs of *nyou* ; shoulder-belt of *mamaroko, sinosage, ekeki, vuvu* ; dose of *piniala* ; pendant of *vovonja*, and four pairs of *pepeu*. We do not feel sure that the use assigned to the *año* and *pasapasa* is right. Matekolo merely said : "I take *año*. I take

pasapasa," which, without a word of explanation, might very well mean that it is eaten, but as he went on with the names of leaves, it looks in the narrative as if those tubers and the leaves were used together, a rather unusual method. The prayers are not located. There are two: "I have come, I treat this man, so let him live, let him not be ill, let not his belly ache." (LXXII (*j*).) The second runs: "I cool with Tuñge, be favourable, Tuñge, and let him not be sick, let not the witchcraft come, let not his belly be sore, let it cease." (LXXII (*k*).) Formerly there was a mention of Kolombañara, but Matekolo has forgotten the words.

Matekolo knows how to catch the *penupenu*, a diminutive parcel made up of leavings of the sick man: bits of tobacco, peels, or else his hair, nails, etc.; it is used by the witch to kill his enemy, but is recovered by the spirits called *tomate kuri*, who bring it back. Matekolo snatches it and puts it in water to cool. It is generally caught on the last day, but if the cure works strongly it may be caught on the first. Period 3 + 1 at any time of the month.

The catching of the *penupenu* was witnessed by one of us, as performed by Kundakolo. Friction with rumpled leaves of *totoa mbembe*. In the prayer occurred the names of Epidemic, Evil Eye, Witchcraft (*Ave, nJiama, Mba*). A collar of *ekeke*, stroking with four tips of *pepeu* and two of *vonjamboe*, which are then hung on the neck. "*Nana tomate tañgu*" ("there is my spirit"), said Kunda, pointing towards the wall-plate of the house; as he spoke the words he seemed to pluck something thence: he opened the hand and showed the *penupenu*, a small parcel, flat and square, some 3 to 5 mm. to each side; it was made of an old smoked leaf, doubtless taken from the thatch; it seemed very much as if Kunda pointed to the wall to divert my attention from his hand. After this came kneading in the belly and passes over the face repeated four times, blowing on his hands after the passes.

Laiti Lavata's cure for witchcraft was also witnessed, but no notes taken on the spot; the curious part of it was that it alternated with the ministrations of another leech, each performing part of his own, then yielding his place to the other; the two treatments were quite distinct. The following reluctant and imperfect account was given by Laiti:—

"Pendant of four shoots of *vonjamboe*, two of *mbatu kunduru*, two of *mburape*, one of *mbirimbiri*, one of *lovulovu eoro*, one of *nyenycla*, one of *kiikindova*, one of *suga*, and two shoots of *nyou*, girdle of *sinosage*; shoulder-belt of *mamaroko* and the skin of *pasapasa*; collar of *putu*; *iru* with four leaves of *kiti*, four of *mbuna* and *njilatoño*, with the words: 'Come down, depart' (*Gore mu riumua*); fumigation with scrapings of *putagelu*; dose of *pasapasa*, then *año*, then *kuruvete*, then *ruperaro* for both leech and patient; spitting with *pasapasa*, whereupon the *penupenu* falls on the man's head and Laiti catches it, stroking with an indefinite number of leaves of *njari tana lape* rumpled and rubbed on the stomach; one leaf of *valiolañge* passed over the brow and cheek: 'I stroke down the illness and sickness' (*Ñgula vagorea ñgui na mo, na vioro*). Massage. Period: 3 + 1 days at any time of the month. Restrictions,

none; the patient uses no lime and does not bathe, but that is merely because he does not feel disposed."

We do not know whether there is a *kenjo* connected with the above treatment; of Kundaite's charm for witchcraft we also possess only the remedy; this was performed on our interpreter, Samuai, after his recovery from pneumonia. It is quite common to treat a sick man after he has recovered. On that occasion he used *kevu kilo* (the parrot's bamboo) as shoulder-belt; *muma gaili* and *mbatu kunduru* leaves were held over the head with the words: "*Pupula* (four times), away, Onda, Misu, Pilu, Ari, oh! let it come down and let it depart, and let him live, the man here, let him drink, let him eat." (LXXII (*l*).) *Pupula* is the technical term for leaves held over the head. He then with the same leaves brushed the patient from the face to the chest three times and hung them in the collar at the back; with leaves of *njari tana lape* he rubbed the pit of the stomach, saying: "Stroke away the witchcraft, the evil-eye, let it come down, and let it depart, let the man live whom I treat here." (LXXII (*m*).) A large leaf, name unknown, was passed over the front and back of the head; *pasapasa* was chewed and *ano* also and spat about; then Samuai ate a small bit; massage in the belly followed, in which the thumb, occasionally the fingers and the ball of the hand were used; he seemed to catch something between the fingers and thumb and blew on them.

A few discrepancies exist between the actual process as witnessed and his previous relation; on that occasion he stated that there was also a girdle of *kevu kilo*; he also reported a friction with *kuruvete* on the belly with the words: "Stroke away the evil-eye, the witchcraft, come down and let it depart, come down and let it pass under." (LXXII (*n*).) This last word was explained to mean that the disease goes out of the belly from below. The first discrepancy is a trifle, and he may have been holding unperceived some root of *kuruvete* during the friction we witnessed. Moreover, as we have seen, the treatment is not always the same on successive days.

Kundaite claims to catch the *penupenu*: the *kuri* spirits, whose names are invoked in the prayer, bringing back the *penupenu* which the witch spirits have given to the witch; they place it on the patient's head, whence Kundaite snatches it sharply lest the witch spirits take it back again; the *penupenu* is opened and put into water, where it is left; this is called *valomosia* (to cool it); if it remains hot the man dies. Kundaite was treating a child at the same time and caught his *penupenu* on the second day. Period: 2 + 1 + 1. Fee, one arm-ring; with it Kunda speaks to the healing spirits (*tomate kuri*) before setting out on his professional visit. He addresses them as follows: "This is your arm-ring, ye spirits, let me go and heal, do you redeem this arm-ring." (LXII (*o*).) Probably it is meant that Kunda consults the spirits by the usual method of divination with a ring.

Kundaite was initiated by Pilu who, on dying, became *tomate kuri*, or anti-witch, and whose name is therefore mentioned in the prayer along with the other predecessors of Kundaite. He paid only one arm-ring, as she was his "mother";

for a stranger the charge would be one orange-stained ring, one shell-ring and a pudding. The arm-ring presented by Kundaite is called *matandi tomate*, or "the eye of the spirits"; Pilu used it to speak to the spirits; she informed them that Kunda wanted to know the cure for witchcraft; they gave their consent, and Pilu kept the ring. When a pudding is given the teacher makes a burnt-offering, saying: "Here is the head of your pudding, spirits, yours Onda, yours Misu, yours Pilu, yours Ari, yours who held the charm, so be favourable, this is your pudding spirit." (LXXII (*p*).) The rest is partaken of by the many. The teacher also presents the applicant with *pasapasa*, *kurvete*, *año*. The transmission is called *vakarovo kuri*, that is to transfer the *kuri*. Samuai and Mbera may not eat pigeon on account of the *kuri* cure.

Valomoso is also a cure for witchcraft, but it is distinct from *salaña mba*, though the point of difference is not stated, nor how the man is made ill; the symptom is a fever ("hot all over and sweat"), known as *ikerina*, that is "bad"; nDomo identifies *ikerina* with *na Ave*, epidemic. There is no *kenjo*.

Pendant of four pairs of *nekaneka aŋge mate*, four pairs of *oŋgoŋgu*, four leaves of *uala pipi*, four pairs of *mburape*: shoulder-belt of *aroso mbusambusa*; friction on the head and belly with the scrapings of *kuruvete*; this friction is *not* called *ŋgula*. Prayer: "Four old women in Rano, you four old women in Takapo, you four old women in Tirolovotu, you four old women of Narilulumbi." (LXXII (*q*).) Rano may be the mountain in nDuke. Takapo we do not know; the other places are in Ove. nDomo learned it from Londu of Ove.

Treatment of Foot-sores (salaña mbolivu).

The following cure for sores in the sole of the foot is not, to our knowledge, the sequel of a *kenjo*:—

Mena of Narovo was sitting with his feet over a hole with fire in it, and leaves over the fire. The leaves were *lavalava* and *mbirimbiri* (the number does not matter), along with the scrapings of *njiri*, *suga*, *munidumundu*. Mena thus addresses the fire: "Do not pity me, thou the fire here, kill this sore." (LXXIII.) The meaning is that the fire must not be afraid of hurting.

Mena learned this from Kwako of Narovo.

Treatment of Sores (Salaña tumbu).

nJiruviri knows the remedy for sores on the fingers and toes, but not on the rest of the body. He was taught it by Rembo for a fee of one large ring and one arm-ring; a stranger would pay one ordinary shell-ring and one orange-stained shell-ring (*mbakia*). It might be diminished to one single arm-ring, but a fee must be paid; if told without pay the charm will not act. On receiving the ring Rembo said: "Now mayest thou heal, may the sores cease." (LXXIV (*a*).) The exact words are indifferent; no charm is used in the transmission.

One of us attended when the leaves were plucked; as in all other cases, this is quite informal. The patient, Aru, was seated outside the house; the treatment was

not a great "*tambu*," or it would have had to be carried out indoors. nJiru went apart to pound the leaves of *mata kindava*; he did not want others to see what leaves they were.

No words were spoken during the pounding either mentally or aloud: the *matakindava* was then wrapped in a leaf of *ugugu* and pressed over the sore; the juice was red; this done, nJiru inserted the leaves in the outer side of the wall. If the treatment takes place indoors the leaves are tucked into the inner side. This was the second day of treatment that we witnessed; it is repeated three or four days. The patient may not eat sweet yam and vuvu from the first day of treatment till the wound heals; nor domestic areca- and betel-nut and coco-nut for the three or four days of treatment (perhaps also till recovery, though we have no statement to that effect). Liming the hair or face is also forbidden, and rings also, but ornaments are not such a serious taboo as sexual intercourse for the two to four months of treatment; the breaking of this rule is revealed by the spreading of the sore and the issue of serum ("water"). nJiru then refuses to be any longer responsible for his patient, and leaves him to find another leech.

The cure was again witnessed a month later; it was in all points the same, except that *lavalava* leaves were used, the juice of which is black; on the third month the leaf is *likuliku mbambata*, on the fourth *año*.

The time selected for the treatment is always the last days of the moon (*itcke popu*); if done at the return of the moon (*tale popu*) the sore would wax with the moon.

The treatment ceases with the complaint, but may not exceed four months, whether the wound is healed or not. On winding up two ceremonial puddings (*manji*) are made with nuts and sweet yam: bananas are not used. They first pound a small pudding and wrap it in four leaves of *sinu*; nJiru takes a small piece off the top (which explains the term *mbatu manji*, head of pudding); he puts it into the fire for his own and Rembo's spirit, namely, Ruru, who "savvy make him *tambu* first time." He prays: "Here is your pudding, spirits, let the sore cease, let it not return." (LXXIV (*b*).) Njiru then gives a small piece to the patient, then the whole family present eats of it, and some is reserved for any member who may be absent in the bush; if anyone does not eat he gets sores, unless he is a stranger, who may or may not eat, as he likes. nJiru himself does not eat. A big pudding is next made in the same mortar; nJiru carries it home, for he may not eat any of it in the patient's house; he shares it with his own family, who are under no obligation to eat, as it is not sacred (*tambu*).

The spirit, nJiru explained, receives his share of the pudding in return for his medical attendance.

Gumba.

The belief in *gumba* is not very clear. Alembule explained that a man is *gumba* if he is slow to rise in the morning when a stranger has been sleeping in the house;

according to nJiru, if being already sick his sickness is increased on the departure of one who slept in the house; it is therefore taboo for a stranger to sleep in a sick man's house unless he is going to stop there altogether; this is no doubt a particular case of which Alembule's definition is a general rule. It is certain that in Eddystone it has nothing to do with spirits: nJiruviri is emphatic on this point.

The following preventive is the property of Leoki, who obtained it from Soku of mBilua, Vella lavella:—Supposing So-and-so is ill, and Kunda and Saipio come to sleep in the house, Leoki takes a dracæna leaf, splits it lengthwise without severing completely the parts, and in one strip he makes a knot for Kunda, in another a knot for Saipio, and so on, as many strips and knots as there are strangers. As he binds each knot, he says: "The *gumba* here is of Kunda, the *gumba* here is of Saipio" (*Na gumba na i Kunda, gumba na i Saipio*).

Paita remembered imperfectly a charm used by Sindasinda of Zhava, Vella lavella. A knot was made in a dracæna (*vama*) leaf with the words: "*Ź̇umba ño kale ko vaźo*," which Pandanjiuru thus translated into Eddystonian: "*Gumba mu koni vagumbai, ko mi mbeto tu.*" In English: "*Gumba* do not make him *gumba*, and let it cease."

nJiruviri claims that his own charm, derived from Rembo, who got it from Ńetuna, is Eddystonian. He takes four leaves of *ugugu* and enters the house, rubs the patient, saying: "Wake up well" (*Mu vagunu njoña*), and then walks out at the other door, sweeping out the *gumba* before him with the *ugugu*, saying: "Go away, thou *gumba*, let the man live here, let him wake up well, let not the *gumba* catch him." (LXXV.) The leaves are thrown away into the bush; this is also used as a preventive.

Impotence.

Impotence is called *gulembe*: nJiru was treated by Pananoñoro's charm, the *tomikindende* (*facit erectum*). He touched him in the loins twice with the root end of a stem of *piro lomoso*, then rubbed the scrapings of some plant on the stomach. It failed; three others tried, and at last Leoki succeeded, and was paid one shilling; this is the only case we have of fees in coin. Here is the remedy:—

A grass called *tuñgetuñge nuna* is tied to the right wrist and a branch of *gototulusu* is inserted in the right armlet; four seeds or flowers (*vua*) of *tuembarambara* are eaten with betel mixture. Roñgana was Leoki's teacher. There is no *kenjo* in this cure.

Sinare.

Matekolo learned *sinare* from Sare, his "father," a native of Munda, where there are plenty of Ysabellian charms and observances.

"The *sinare* is not a human spirit (*tomate tinoni*) like *tuturu* and others; it is the original *kuni*, a kind of frog, that taught the cure. It lives in the ground. Once upon a time a female *kuni*, Kekea by name, came out; she took the *sinare* (in this case the

simples used in the cure); she took some *kuruvete* and gave it to Maekolo, a woman, and said: "Here is *kuruvete*: if a man is sick, restore him to health." She gave *pasapasa* to Maekolo, saying: "Here is *pasapasa* for you; it is yours; cause men to live." For Maekolo was as her daughter; she also told her about the *ugugu* plant and gave her some; she took *pepeu* and told her to put it on the neck of the man she cured; she scraped some *tita* and made her eat; she gave some *mbupa* and *mamaroko*.

The cure is contained in this tale: passes on both sides of the head with scraped *kuruvete* in each hand; fillet round the head of *aroso ugugu*; spitting with *pasapasa*; stroking four times on the face with four pairs of *mbupa* and with *pepeu*; pendant on the chest with the *pepeu*. While stroking he says: "I cool, *sinare*, let him not be sick, let him not be ill, let him sit up, let not his spine be broken; thus I do to this man; tend him, thou *sinare*." (LXXVI.) The *sinare* is a cure for headache. There is no *kenjo*, for *sinare* does not cause sickness; it only makes men well.

Matekolo may not kill the *kuni* frog; we do not know whether the patient may.

There is an altar of *sinare* with four upright stones in Rando, next to Matekolo's house in Karivara.

Headache.

An old widow of Narovo, whose name is not recorded, has also a charm for headache.

A leaf is rumpled and applied to the head; *mburape* and *kundala* used as pendants; the skin of *kokolo mbañara* is tied round the head. Prayer: "*Imbu noso paŋgoele, noso varitavoŋi mbatu.*" I am unable to translate; apparently it contains some very unusual words, since our interpreter, Samuai, could not understand it.

The old lady also demonstrated on one of us a cure for pain at the back of the head; she rubbed a leaf of *pepeu* on the poll with the words: "*Noso imbu magogoso, noso imbu, magogoso tu, ta poŋga ta njili, varivatoŋe mbatu.*"

Ragomo.

There is no *kenjo ragomo*, but only a cure; it belongs to Widow Vuru, who uses it to heal wounds.

Friction (*ŋgula*) of the wound with scraped bark of *ao* with the words: "I rub this wound, let it close the wound the . . . let him bathe, and let him be eased, and let me make *ragomo* on him and let it cease." (LXVII.) Friction of *pasapasa* and *kuruvete* root on the wound; shoulder-belt of *tinitini mbambata*, *mburi* and *roku*; pendant of four pairs of *ringi*; spitting with *pasapasa* scraped with the *rikiriki* shell. The patient washes in fresh water for four days, then may wash in the sea. The cure lasts as long as the wound; if it does not heal quickly it is cut (*gasi*).

The possessor of the cure may not kill bats (*veke*) nor *mendomendo*, a big fish in the sea that eats grass, possibly the dugong; they both "belong *Ragomo*." Widow Vuru may not even look on if they kill these animals

K. Aŋge Mate.

Aŋge Mate are spirits connected with fishing, and they also cause vomitings to anyone who meets them on the beach.

Setting up: the leaves were plucked by Paila and the numbers here given are the numbers he showed: one leaf of *rumbo*, one pair of *ovove*, two of *putavelu*, three of *riro*.

Removal and driving away are not recorded.

Treatment: three leaves of *putu*, four pairs of *paro*, four pairs of *riro*, four of *gagua Aŋge Mate* are dipped in salt water brought to the house for the purpose; the patient is sprinkled with the water (*iru*); pendant with all these leaves. Prayer: "Come down, depart, you the *Aŋge Mate*, and do not haunt this man, and let him live, so come down, depart sickness, illness, the *Aŋge Mate*." (LXXVIII.) The patient vomits and recovers.

Suga, Paila's "brother," taught him; there was no fee. There is an image of *Aŋge Mate* in Renjo. The leaves enumerated above were also put on when a man first visits Renjo.

Diarrhœa.

Leoki cures diarrhœa with a girdle in the following manner: he takes one long stem of *roku* and skins it, also one of wild *vuvu*, lays them alongside, makes a knot at

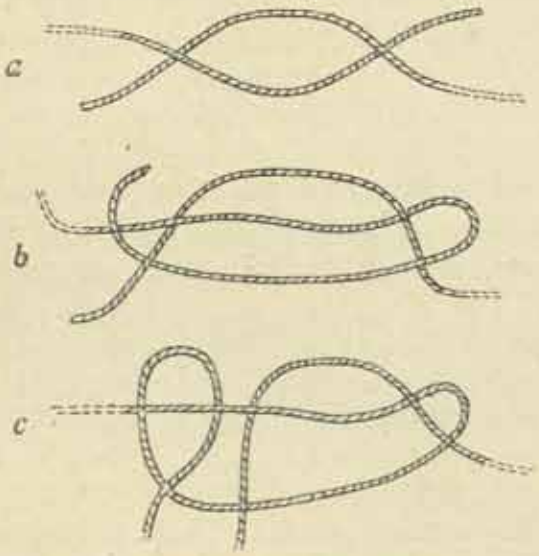


FIG. 2.—KNOT USED IN DIARRHŒA CURE.

the end of each and at the same end a knot common to both; he puts them round the waist and crosses them as in beginning a sailor's knot. (Text-fig. 2, *a*. The two are treated as one). He then passes the knotted end under the free end and over the girdle from below (Fig. 2 *b*); it is then passed downwards between the girdle and skin, then

through the small triangle formed on the left side of the figure (Fig. 2 *e*). This is then pulled tight. Then Leoki scrapes a stick of the black *kanarium* (*ŋari ndavala*) with a *rikiriki* shell and puts the scrapings in a leaf of *ivi* (*elo ivi*); he likewise scrapes a branch of *tita* into a leaf of *tita*; he takes the *kanarium* powder with the fingers (not the palm) of the right hand; the *tita* with the fingers of the left, and rubs the belly and legs down to the feet four times. There is no prayer. This is repeated till the ailment ceases, but not exceeding four days.

Cough (*Ňavele*).

I have described the nature and *kenjo* of this disease (p. 233). Leoki has a cure without *kenjo*: a leaf of *ugugu* is dipped in fresh water and applied to the chest; a branch of *loŋgu nyatu* is broken and the juice collected in four leaves of *ugugu* and drunk.

Salaña nDandaña.

nDandaña is a pain in the inner aspect of the thigh; this is also known to Leoki; he applies the stem of a dracæna leaf to the thigh and tears it from the point lengthwise, but without severing the halves, saying: "I rend thee, *ndandaña*, come down, depart, lie in wait for a man who will step over thee, then leap over to him." (LXXIX.) He sets down the leaf at the parting of ways with one half athwart one path and the other half lying across the other path. The prayer sufficiently explains the action of the charm.

Various.

Vuriviri is a disease similar to leprosy, but the cure is very simple. Pinju of Ove rubs the sole of his foot on that of the sick man four times. There is no *kenjo* connected with it. Pinju was taught by Mio.

Kenjo ndende gogoto causes permanent erection of the penis or clitoris.

Panjala is a sore head accompanied by insomnia; the cure is known to nDomo.

The following is a preventive charm performed on me by Kundakolo the day before I left the island. He took a herb called *pasapasa njiama* and tied it by the stem to the neck with a prayer that was approximately as follows: "The *pasapasa* pendant here, heal Hocart, may he arrive in Fiji, may he live, may he stop, then may he go to England, may he live, let him not be ill, to-morrow may he depart, may he plant the magic *kuruvete*, be favourable." (LXXX (*a*).) He made me a present of the root of a *kuruvete* plant used in medicine. The whole formula is an interesting instance how unsettled the words are and how they may be adapted to circumstances, except in the case of a formal *varavara*. The words thus recorded were not exactly what he had said, but when I insisted on knowing the actual words he gave the following mutilated version: "Come down, sickness, disease, and let this man live, and let him wash and let him live, be favourable." (LXXX (*b*).) Evidently no importance is attached to individual words. What he gave the second time was

evidently the average formula in healing a sick man, which shows that what he used preventively was normally used as a cure. So also with *Paro*: Sulutava will hang on the neck of one who is about to go into the bush leaves of *riro, opopeoro, nyou, vao, kindova, mbuni*, all which except *vao* are used in treating cases of *Paro*. In putting on the leaves he says: "Put on the neck the bunch of this man. Be favourable, do not kill him, look after him." (LXXX (*c*).)

On one occasion Maekera, instructed by Sulutava, wore leaves of *mbirimbiri* and *paro*. The *mbirimbiri* appear in the cure. It is the custom when going into the bush in unfrequented parts, especially early in the morning and late at night, to hang leaves on the neck. He who goes to Patu Kio arms himself against the spirits of the mountain with leaves of *nanja keka*; when they go a-nutting or pass near a place haunted by man spirits, they use as a protection leaves of *piku, geligelicŋgili* and *paripari*: the *paripari* and the *geligelicŋgili* occur again in Pandaŋgeto's cure for madness (p. 236), and the *piku* in setting up the *kenjo*. The leaves thus worn in the bush are a matter of common knowledge. It is also common to wear a dead man's tooth about the neck; Gegesa explained that he wore his because he was afraid of spirits at night. A precautionary treatment can also take place on return from the bush; one day as one of us came back from an excursion Kundakolo tore lengthwise two leaves of a species of *kuruvete* with leaves half yellow, half green, and with them stroked me, saying: "He has been in the bush, he has been in the bush, do not be angry, you the mad spirits, do not be angry, you bush spirits, let him not be ill, and be favourable to this man, and let him live after having been (?) in the bush, in the place of mad spirits, in the place of spirits, be favourable oh!" (LXXX (*d*).) The name of this treatment is *Simboro*, which means to start as in surprise or fright.

On another occasion Kundakolo, reflecting that we went about distributing tobacco, and were thus exposed to witchcraft (*mba*), consulted his spirit, who told him to put leaves (*covonja*) on me, and who further announced that I should go to Fiji, return to Eddystone, and thence to England, and not be sick. Kunda accordingly took one pair of *totoa mbembe* and four of *vonjamboe*, and *mamaroko*, with a prayer of which only a garbled version was obtained: "Let Hocart live, let him not be ill, let him not die, let him live, let him not die." (LXXX (*e*).) The leaves were then hung on the neck with *mamaroko*.

Mbana can cure the bite of a centipede: spitting on the wound with *pasapasa*; the stem of the *pasapasa* is tied round the ankle.

The sting of *nogu* may be cured by micturating on the sore part. Fumigation with *mbirimbiri* and *riro*.

I have kept apart a series of charms belonging to Ñanya because they are not yet part of the lore of Eddystone. They really belong to Manning Straits. The disease is produced by an animal exactly in the manner described to me by one Sopaleha of Bugotu.

Ñanya knows the following :—

Kenjo golugolu (a kind of lizard) ; *kenjo Pilikonje* (a black beetle with long legs) ; *kenjo Rako* (the so-called *iguana* : monitor ?) ; *kenjo ndole tia* (snake in the stomach) ; *kenjo ŋgasere* (octopus) ; *kenjo kuni* (a frog). They are all derived from his father, Rau, a native of Vagena in the Manning Straits, who migrated to Zava then settled in Luŋga.

The prayers stand as I heard them, although the grammar is certainly wrong ; either because Ñanya has an imperfect knowledge of the Eddystone language, or because he is carelessly changing from one person to another. We get such incoherences as "enter thou (the animal) into thy (the man's) belly and let him (the animal) eat thee (the man)."

Octopus.

Setting up : four pairs of *lelete* on a stick of ivory-nut palm. Prayer : "Be favourable, ye octopuses, and let it stand up, and eat the belly, and let it eat thee, let it eat the entrails, and let him die, the man who eats." (LXXXI (*a*).) The octopus enters the thief and causes pain ; if it stretches out its tentacles to the man's head, the man dies.

Removal : stroking with four *elo rara*. Prayer : "Be favourable, thou octopus, come down and depart." (LXXXI (*b*).)

Cure : we witnessed it as performed by Nake, Ñanya's adopted son, with the assistance of Ñanya. Nake, on feeling the patient, recognized that it was an octopus, and no snake : could tell this by the shape ; moreover, in the octopus complaint a man does not vomit, and can eat a little, whereas the belly snake gives vomitings. Nake kneaded the patient's stomach very deep, rubbed his hands and blew upon them ; kneaded again, rubbed and blew ; then he took a heated leaf, of which we do not know the name, and pressed it very deeply in the stomach, which he then rubbed, heated the leaf again and repeated the operation three times, then placed the leaves in the thatch. The patient sat up and began to knead the stomach with the kind of movement used in diagnosing tumour ; at the same time he muttered a prayer we have not got ; he blew on his hands and repeated the massage a second time. He gave place again to Nake, who took some scraped bark and rubbed it between the breasts and on the flanks, speaking the while : he blew on his hands, and after a second friction inserted the leaves in the thatch ; he then put a creeper as shoulder-belt over the right shoulder. We subsequently obtained a prayer used at the fomentation : "Be favourable, thou spirit, thou octopus, let live this man, be favourable." (LXXXI (*c*).) We were also told that *ndelete* and *moe* were used in the fomentation, *rukuruku* as shoulder-belt, but we have no great confidence in these statements made after a long interval of time by an unsatisfactory informant. Period : three days (none for the spirits) at the waning of the moon on three successive months. Restrictions : coco-nut, domestic areca and betel, washing, liming for the three days of treatment.

Two puddings are made; one small one is eaten at the patient's house, the large one Ñanya takes with him. He offers up some of both—the first in the patient's house, the second in his own. In offering the first, he says: "Here is your pudding, spirits, be favourable, let this man sit, let him bathe, let him live, let him drink, let him eat betel, be favourable." (LXXXI (*d*).) They all partake of the small pudding. At home he uses the following words: "This is your pudding, ye spirits, the pudding of the man who is ill, be favourable." (LXXXI (*e*).)

Golugolu.

Golugolu (? *voluvolu*), a kind of lizard, enters at the anus; he eats up the entrails: if it goes up to the throat the man hiccoughs violently, and dies.

Treatment: fomentation with *rukuruku*: shoulder-belt of *rukuruku* under the right arm. Prayer: "Be favourable, ye spirits, come down thou *golugolu*, depart." (LXXXII.)

Kenjo Rako.

Setting up: four leaves of the ivory-nut palm in a stick of *riñgi*: "Be favourable, thou *rako*, be favourable and enter the anus, and enter thy (*sic*) penis, thy belly, and let him eat thee, and mayest thou die." (LXXXIII (*a*).)

Driving away: same as removal: "Be favourable, come down and depart, I drive away, and let me eat it." (LXXXIII (*b*).)

Removal: stroking with four leaves of *rara*, two in each hand: "Come down and depart, thou *kenjo*, and let me climb the areca palm." (LXXXIII (*c*).)

Treatment: breast-pendant of two pairs of *rara*, crossed shoulder-belt of *rukuruku*; kneading with empty hands. The prayer goes with the belt: "Be favourable, thou the spirit, be favourable, thou the *rako*, come down and depart." (LXXXIII (*d*).) Period: 3 + 1 in the last days of the month: one month only.

Belly Snake (*nDole tia*).

We do not know Ñanya's "belly snake," but Sogaviri has obtained such a *kenjo* from Sula of Luñga; it is the only case we know of such a *kenjo* being in possession of a native of Eddystone. The snake enters a man's belly and eats his entrails that he dies; it does not ascend higher than the stomach.

Setting up: a fruiting (*vua*) shrub of *uka* pulled up by the roots and tied round with *oga* in a forked stick, which is bound round with the *uka* with the words: "I shall set thee up, thou *kenjo*, whoever eats thee enter the belly of the man, thou the snake, and eat the entrails of the man, and let the man die." (LXXXIV (*a*).) If this is ineffective, a bit of *mburi* creeper is added with the words: "They eat thee, so I set thee up, thou *mburi*." (LXXXIV (*b*).)

Driving away: none.

Removal: spitting on the *kenjo* with *pasapasa*. All who intend to partake of the fruit eat and spit on themselves; they also eat of the stem of a *piro* stripped of the skin of *njilatoño*, and of the large *kanarium*, saying: "I eat this first, afterwards may I eat the coco-nuts." (LXXXIV (*c*).)

Treatment: spitting with *pasapasa*; fomentation with four leaves of *vuvu*; massage. During fomentation he says: "I treat the man here, and let him live."

Soga may kill snakes.

Natives frequently have lumps on their arms or legs: "All meat he come one place." These swellings are called "snakes" (*ndole*).

Manning Straits Charms (*Potana Vagena*).

Turtle fishing in Manning Straits is very productive of sickness.

Special charms exist. Ňanya, by descent a Manning Straits islander, has a charm for this sickness: pendant of four leaves of *mbirimbiri*; belt of *mamaroko*; shoulder-belt of *nipa* leaf on the right side, of the skin of *roku* on the left-hand side; massage with the root of *kuruvete*; passes (*tavusia*) with the empty hand over the face; spitting with *pasapasa*; pendant of *pasapasa* leaves, with the following prayers: "Be favourable, spirits in Manning Straits, Lower Vagena, Upper Vagena, in Silavarovorovo, in Vatirovorovo, two old women in mBikolia, Siningai, in Rokana, Matovagi, you four Roroto in Gage, you four Kandakita in Lapangoa, you four Roroto in Gage, thou the Mateana in Matovagi, you two old women in Matovagi; you two prostitutes." (LXXXV (*a*).) Matavagi is probably the right spelling.

ñGuruñguru of Narovo, knows the *Mule kare* or "Bad Return" (from a journey), which he says is the remedy for the Manning Straits complaint (*mō Vagena*): he eats *pasapasa* and gives some to the patient; spitting with the same; pendant of two pairs of *mata siso*, two leaves of *paro*, saying: "Live the man here, be favourable, thou spirit, make him live, you spirits." (LXXXV (*b*).)

Period: 2 + 1 + 1 at any time of the month. He learned it from Hega of Roviana.

Mana.

I have translated the word *mana* by "be propitious," "be favourable," "grant," etc., but the word is untranslatable. The native translation is "you speak true," applied only to spirits and old men who, possessing charms, as, for instance, Rinambesi, Mbolana, a *bonito* or garden shrine, *kenjo*, or Mad Spirits' shrine. It is to these what *sosoto* is to ordinary mortals; the opposite of both is *koha*, "to deceive," "lie," "be in error"; thus if a man goes out fishing he will ask Rinambesi, who is "all the same *tomate*," and owns a *bonito* shrine, to *mana*. "All right," says Rinambesi, "you will catch plenty." If the words come true, Rinambesi *mana*; if the fisherman fails, he says Rinambesi is false (*koha*). The word is sometimes used transitively

with the suffix *-ni*; we might then translate it "grant," or "grant my prayer in respect of this man," or "be favourable to this man." In Eddystone only Rinambesi and Mbolana, both very old men, are *mana* among the living, but Hañgere, who lives in Roviana, is *mana* for *bonito*. He set up a *bonito* shrine in his adopted country which proved most successful. Having a quarrel with the people, he returned to Simbo for a while, and during his absence the people of Roviana were most unfortunate in fishing. All three are chiefs: Rinambesi is chief in Karivara.

Teaching.

Commonly our informants would merely give a list of names of plants without even mentioning whether they are used for pendants or stroking; in fact, they would resent any inquiry into their uses as asking the same thing twice over. It would seem, therefore, that to the native the mode of using the plants is self-evident as soon as he knows the name: thus, if *mamaroko* is mentioned it is plain that it is put round the body; other leaves, it is plain, are used for stroking and then hung on the neck. Except where there is a special feature, as in the elaborate madness taboo of Pandañgeto, nothing but the name would be required. Moreover, the applicant for knowledge, being generally a relative, is pretty sure to have seen it performed. As for the prayer, it is left to discretion unless it is of the *varavara* type; even prayers in which names occur are not always handed down carefully, since the owner often confesses that his teacher knew the names of the spirits but did not tell him.

For the methods of the shark and the crocodile taboos the reader will have to await Dr. Rivers' reports; but in my later visits I collected the following information about them.

Shark Taboo (Kenjo mbagea).

Whoever eats fruit protected by the shark taboo will be eaten by a shark. Paila, who owns the taboo, may not kill sharks, nor see them killed, because when Tokala, his "mother's father," died, his body was left in Alengora; when they went to see he was gone, and in the place was a shark which jumped into the sea. Alembule obtained from Paila some *pasapasa* which he spits on the canoe to drive the sharks away if they come and break it. He also rubs his arms and legs with the *pasapasa* before going out *bonito* fishing. He told us that once a tidal wave, caused by an earthquake, swept Paila out to sea, but a shark coming up, Paila got on his back and was conveyed to land. Though not himself acquainted with the *kenjo*, Ale had been told not to kill sharks or the spirits would be cross and kill him.

The possession of the shark *kenjo* has tabooed sharks to Billy Keana also: if he kills a shark, "shark cross, he fight Billy, Billy no more alive." If he does kill one he goes out to sea with one large ring, one *pañgosia*, one *ndavi*, one arm-ring and drops them into the water with the words: "Here is the peace offering for you, the sharks: the stump of the coco-nut leaf has fallen on thee, and be gracious;

the peace offering for you sharks, you gods." (LXXXVI.) "A coco-nut leaf stump has fallen on you" is *vavaravara* for "kills thee"; the word kill is taboo because he makes *kenjo* with the shark; he wants to make peace (*mbule*) now, he does not say "kill," that is why he says "a stump has fallen." The stump of a coco-nut leaf (*pepelata*) is the sign of the shark taboo. (Pl. XXIV, Fig. 4.)

Nimu also has to respect sharks because a body was left in the bush; after three days they could not find it. On talking to spirits it answered that it had gone to sea as a shark.

Crocodile Taboo (Kenjo eoro).

Alembule may not kill the crocodile for the following reason: "A man of Karivara died and was left in the bush. After four days they went to sea: they did not find the body, but a crocodile. 'Where is that body?' said they, and divined with the ring (*sambukai*). The spirit said, 'I am not dead; I am a crocodile.' They went down to the sea." Ñguruñguru knows the story; that is why he may not kill crocodiles nor may his children, nor Ale and his parents. Ñguruñguru also knows the crocodile taboo.

Paila may not kill the crocodile or see others kill it because Toñgere of Mbetapiro changed into one.

IV.—Curses.

The word *maulu* covers a number of customs which we would variously describe as *oaths, curses* and *abuse*, but the fundamental idea seems to be that of curse, and I shall therefore use this word to express it.

In one of its commonest uses it is a taboo. In outward form it may resemble the *kenjo* very closely. One case we saw and heard of in detail; as we were going to Simbo through Mbulolo and were about to follow one of the two paths, our companions pointed out that it was barred: a *maulu* stood there, and so in evident trepidation they took us round the other way. Ndote, son of Kundakolo, had made it; his father explained that the young man objected to the use of the track by the people, going between Simbo or Karivara and Narovo; it was not a "road," he objected, but his house, and to compel them to go round he barred the way, saying: "The man who walks there let him walk in the defæcating place." (LXXXVII (*a*).) Some months after we found it gone, but the track was only used to go to Mbulolo.

It may be set up on a canoe. We saw one set up by Pore of Karivara on his canoe; he had lopped off the side leaves of green twigs of *njanjala*, and wrapped the top round with *piro* and stuck them in his canoe. Ondaite's slave was sold to him by a chief of Ndovele for "eating a *maulu*," that is fruit protected by a curse. A man out of spite can taboo his house to his enemy, leaving access to others. He will say: "The curse, let him eat excrements the man who enters the house." (LXXXVII (*b*).) He can also make a curse to prevent his property from being stolen. A whole territory may be tabooed in this way to the inhabitants of another district, as when Soga and

Rembo excluded the men of Simbo by proclaiming : " The curse, do not come down to Narovo." (LXXXVII (*c*).) The curse was removed by an exchange of rings.

A girl may be prevented from marrying by a curse. She may persuade her father to take away the curse : the suitor may present a ring to induce him to do so, but if the father is inexorable he will refuse it. The curious feature is that no names are ever mentioned in any of the formulæ obtained, yet the taboo applies only to one particular person. This was made perfectly clear in an ocular demonstration in which stones were used to represent the rejected suitor and the others to whom the curse did not apply. A man may claim a young woman to himself by making her his *maulu*.

A curse may be used to stop a fight : " The evil curse, you two do not wrestle." (LXXXVII (*d*).) On the other hand, it may be used as a challenge or summons to aid. When two men are fighting, the friends on both sides come up and say : " *Gita na maulu, ko ta varimborori* (?) *ndapu*." The meaning seems to be : " We are bound by a curse, so let us all fight."

If a man breaks the curse, " he no sick, he no die, he nothing " ; he is liable to a fine of one large or one small ring, according to the magnitude of the curse (what makes a big or a small curse we do not know) ; the fine is called *inira* ; if he does not pay up, they fight the next time they meet.

A curse may be retrospective : a case occurred during our visit. Pendi, Riapitu's wife, picked up some of Namboko Ñanja's nuts in spite of the latter's taboo, called *kenjo paleka*. The owner, in anger, " swore " at Pendi's net basket (*ira*). She used words like these : The man who has picked up my *ñari* and put them into his basket, put them into his net, let him sit upon them. (LXXXVII (*e*).) The effect was that Ria could not eat her nuts. Ria had to kill a pig and make *gulasa*. The ceremony, of which we do not possess the detail, was accompanied by the following prayer : " Let me purify (?) you, you the nets, the baskets, the packages, let me not dwindle so that I die." (LXXXVII (*f*).) A bit of the neck called "kuru-kuru " was burned in the house for the spirits with the words : " Here the pig for you, spirits, *tuturu*, do not be angry, you the *tomate*, the *vea*, oh ! " (LXXXVII (*g*).)

Another way of expressing the curse is : " Let him who stole from me defæcate on his basket." A fine of an arm-ring is paid by the offender.

Maulu also covers our word oath, and in this sense the theory seems to be the same as ours. If a man accuses another of theft and is met by a denial, he will say, for instance : " Swear, you have stolen the matches." To which the accused answers : " I have not taken them, skull house in Nduli," or " Skull house in Mbiru, I have not stolen." (LXXXVII (*h*).)

An inhabitant of Patusogara will swear by the skull house in Njarembañara, Pandanjiru by that in Mbulonau, Alembule by that of Mbiru. If the accused does not swear he stands convicted.

Cursing and bad language are both *maulu*; to curse and to abuse are both *vavakunda*. Nuts may be abused, but not shell money. Bad language may not be used to chiefs either, or old men, or an elder brother. Here are specimens of native swearing: "Eat excrements," "Eat woman's privates," "Thou woman's privates," "Thou excrement," "Eat clitoris, anus," "Thou clitoris, thou anus," "Eat the privates of a woman," "Eat the women's confining house," "Carve up thy sister." (LXXXVII (*i*).) The expression *tea tu* (go defæcate) is often used playfully—for instance, in answer to teasing—but real angry swearing, such as is used by white men, we never heard or noticed.

V.—Texts.

LVII.

(*a*) Pini na kenjo ŋge piunia, manani tu ago na kenjo pini; tinoni mi gania mi ŋavele tu, mi mbele tu ko mi mate gana, ko ma gona pania pa n'ivere, ŋge sainia na ŋgua kenjo ara, ŋgara gania, ko mu mana tu ago.

Or: manani tu ago na kenjo pini tinoni mi gania; mi ŋavele, etc.

(*b*) Ŋge ŋgula vagorea pania, lago tu pa na tambuna, ago na kenjo.

(*c*) Ŋge pua ŋavele, mana tu ago na pua pini, mu riu tu, ago na ŋavele, mu riu tu, ago na mbele, mu mbeto tu na vitigi tia, mu mbeto tu na vitigi mbatu, mi toa tu na tinoni pini ra, mi ganigani na tinoni, mi mbuku tu na tinoni pini ra, mi piala na tinoni, mi puta tu na tinoni pini ra, mi ogono na tinoni, mi lomoso tu na tinoni pini, mi soana na tinoni pini, ko mi toatu ooo.

LVIII.

Kati iko, ŋge mati ganigo, ko mu koni sai ago na kenjo, mu lago tu pa na mua kenjo, mu koni vatakekuru.

LIX.

(*a*) Ŋgara gani ŋaŋulia na ŋgua sura; mu mana tu ago, na kenjo, ko mu vagia na tinoni.

(*b*) Gore tu ago na kenjo, ko mu lago pa na mua kenjo, ara ŋge mburana, ŋge mati gani, ko ŋge ke iko.

(*c*) Ma vagore, ago na kenjo pini, mu gore tu mu riumua, ko ma gania na sura; ma vagore vatonjomigo.

(*d*) Kolo Motu, kolo Vae, kolo Suna, varavara vamairi ara, mu vamatua ago.

LX.

(*a*) Ago na gusu pa Volavola ō, ago na gusu pa Varo ō, ago na gusu pa Rupe deva ō, ago na gusu pa Lokomō, ago na gusu pa Humbolo, mu koia na kenjo pini.

(*b*) Mu gore mu riu tu ko ma gania, mu koni vatakekuru, mu koni vatambelo.

(*c*) Gore tu ko mu riumiu, gau na tuturu, ko mu koni ovai.

LXI.

(*a*) Na tinoni gania, ai takombu na njolena, tumbu na mboana, takoroto na laguna, ai mimitamago.

(*b*) Mu gore tu ko mu riumua ago, na kenjo, ko ma vagore panigo.

(*c*) Ma irusaonigo, na kenjo, mu lago tu pa na mua kenjo : ŋge ke iko, ŋge ke nanulu, ŋge irusao vatonjomigo.

LXII.

(*a*) Pini na kenjo, mana tu, gau na gugusu pa Gelikumbolo, mana tu, ago Loupaŋgo, mana tu, ago na vambana, mana tu ago, Vao, mana tu ago Noevonja, mana tu ago, na mbirotupe, ko mu vamatea na tinoni gania na kenjo.

(*b*) Gore tu, na kenjo pini, ko mu riumua, lago tu pa na mua tambuna ; mu riu tu mu toŋgo pa na mua kota, mu koni saiviŋgai, ko mu riu tu ago.

(*c*) Ŋge vambukua na tinoni pini mu tapiara, na mamandara, mu tamunja tu, riu tu na mandara (*sic*), mi toa tu na tinoni pini ; ria pu nu isoŋia nia mu lago pago toŋgo, ko mu mana tu ko mu (*leg.* mi) toa tu na tinoni pini ō, mi ogono pa n'ivere, mi mbilua na mbatuna, ginja tu.

LXIII.

(*a*) Pini na kenjo, mana tu, tinoni mi ganigo, kenjo pini, mi kita, ko mi iteke ko mi galegale pundapunda, ko mi mate ko ma gona pana pa n'ivere.

(*b*) Gore tu na gugusu Mbetasise, gore tu na gugusu Galagala, gore tu na gugusu pa Rokana, gore tu na gugusu pa Ndaembaŋara, ara na kenjo, mu koni sai, mu koni korakora, gore riumua ago, mu koni londo, mu koni ŋere, mu koni kitakita, mu koni kaka repi, mu koni garogaro, gore mu riumua ago, ko ma piala n'imburu, piala n'uala.

(*c*) Lumania na tinoni pini, vamatea na kita, ko mi (? ma) lumana vagorea pania, mi toa tu na tinoni pini, mi lavata na tinoni pini, mi tovutovu pa na kolo, pupulei pa na pie, vape pa na pie, ulo pa na pie, iso pana kolo, viroŋgu pa na kolo.

(*d*) Manania na tinoni pini, vasagea na ndoko, Korapa mbaŋara sa, Minja mbaŋara, Mbariki, Kavuru mbaŋara, Savena, Suna, Mbukulu, gau tamania na salaŋia.

LXIV.

(*a*) Ŋge . . . mu mana tu ago, na kenjo, tinoni ai gania, ai kesai, mu nu mana tu pago, ko rende tu gale pundapundana, na tinoni ai ganigo.

(*b*) Ŋge mamisigo ko ma tekua gore ko mu mananiu para ago, ko ŋge vagorego.

(*c*) Ŋge varivandoko, mu mana tu ago, na ndoko, mi lavata tu mi orae tu mi njoŋa tu.

LXIV (1).

(*a*) Ŋge gasa turu, ko mu vagia, na mbage, na tinoni ai ikoa, mi vitigi tu na tinoni.

(*b*) Irua na vasigona, ŋge mati gani, ko ma gania.

(*c*) Iru vagorea na kenjo, ko mi lomoso, ko mi mbeto ko ma kesa n'imburu.

(*d*) Ŋgula vagore pania na mbage, ko mi toa tu, mi mbeto tu vea na tinoni pini ra, ŋge gua, mu nu mbeto na mbage.

LXV.

(*a*) Tinoni gania na sura kenjo, ai votu tu na mbeuna pa na linjina, mi ratati tu pa na peso, koi matatu na tinoni.

(*b*) Gore tu ago na kenjo pini ko mu koni vagia na tinoni ko ma vavagore panigo.

(*c*) Ma paṅgai na mbeu pini, mi mule sage pa na tiana.

LXVI.

(*a*) Mu mana tu gau na kenjo, mu ranja tu pa na tuñutuñu, pa na pundapunda, pa na lima, pa na nene.

(*b*) Mana tu ago na tomate, mu lago pa na mua kenjo, mu koni sai, mu koni vatakeku[ru], ŋge [ke] iko ara.

(*c*) Gore mu riumiu, gau na tomate kenjo, gau na tuva.

(*d*) Riuma tu, ago na tuva, ko mi toa na tinoni pini.

(*e*) Toai tu Wavu, gau na tomate, mi ke tumbu, mi ke vitigi na tinina.

(*f*) Ñgulai ma limbu tu tinina, mbeto tu vitigi, mi toa tu, mi njoña tu. *Limbu*: "he finish sick all over."

(*g*) Tamu na tomate, vatoai tu Wavu: mi ke tumbu, mbeto na tinina, mi ke vitigi.

LXVII.

(*a*) Nana na iamu pa gau na kenjo, nana tamugau kamande ŋgoele, kamande ŋgoele kotua na kenjo, gau kamande ŋgoele pa Mbakia, mana tu kiambakia, Tupombakia, Saemali, Mbukumenia, manani tu pago na tinoni ikoa na kenjo, karu lipa mana tu.

(*b*) Iru vagorea gona panya, mu koni mule pa na tinoni ago, riu pa na tinamu, riu pa na tamamu, riu ghotosai.

(*c*) Riu tu sage pa n'oka, kapori pepuna pa na peso, ago na tomate kenjo, mu nu ke mule mundi, nina tu mu nu mule gore pa na mbatu tinoni, ago, ani venu kami mbokolo; ai ke venu kopuni tu ago na tomate kenjo, tinoni sa ganigo, ago na ŋgua kenjo; mu riu tu, mu lomoso tu pa na pie, riu tu eñai na ŋgavoso, riu tu eñai pa na oka, sage mu ramata pa na paka sa aŋgoro pa n'oka, ai mu nu vea ago, mu nu riu mundi, mu nu riu mu kamboka, mu nu riu gotosai mua ago.

Ai mu nu vea ago: pidgin translation, "What's the matter? Go away behind."

(*d*) Ñgula pania, ŋgula vagorea pania, mbeto ago, mbeto, toa na tinoni, mu koni mule mundi ago, ŋgara venu na mbokolo njoñana.

(*e*) Mana tu ago, ago na ŋgoele toirimu, ago na tomate garamba, gau kamande ŋgoele toirina.

(*f*) Mana tu ago, manania na tinoni pini, vatoai tu.

(*g*) Mana tu ago, ko mi mbeto na kireŋge.

(*h*) Nara yamu tamugau na tomate kireŋge, mana tu, loa tu goto sai na tinoni pini, ma na ke mule mundi.

(*i*) Nara tamugau, ŋgoele toirindi, ago ŋgu tamania, ago ŋgu loai venu para isa na potana.

LXVIII.

(*a*) Vaturua na kenjo, mu mana tu na kenjo pini, mu poŋgai na tinoni.

(*b*) Gore tu ago na Paro, ko mu riumua, ko ma gania na inda, ma gania na sura, ko ma kesa n'imburu, ko ma vagia n'uala, latu ko mu riumua.

(*c*) Riu tu ago Paro, mu ke suverei lani ko mu riu tu.

(*d*) Ñge salaña na tinoni pini, na vovonja (four times), magogoso tu, gore tu mu riumua, gore pa (? tu) na Paro, gore tu N'Aŋge Mate, gore tu na Mateana, gore tu na Tambu Koma, gore tu na Tuturu, gore tu na Ndinandai.

(*e*) Vaturua rau na tokoro ; tie pu mai hiko, raża ia tu.

(*f*) Żoropia na tokoro, imbu paŋgoele, meke varirażai, gore taloa. *Żoropia*: capsize.

(*g*) Tavusia rau na moŋgo, magogoso, gore taloa mua.

LXIX.

(*a*) Manania ago na kenjo pini ra, mi oka igana, paleka tape, paleka kiko kate, paleka peto, paleka novu, mi manania na kenjo pini.

(*b*) Ñgula vagorea ŋgua na kenjo pini ko mi lomoso.

(*c*) Irua para na kenjo pini ko ma gania n'inda.

(*d*) Ñge salaña na tinoni pini ko mi toa tu.

(*e*) Votu tu ko mu riumua, ago na tagosoro, ko mi toa tu, mi mbuku tu, mi ganigani tu, mi magogoso na tinoni.

(*f*) Na tinoni pini ŋge salaña, mu mana tu, gau na tomate, ago na Njiripele ; ai toa tu, ai ke mate.

LXX.

(*a*) Mu mana tu ago, ago na kenjo pini, mu kombu ase, mi takombu tu, tutu na livo, mi yambo na maña.

Tutu : was said to be "*varavara* talk."

(*b*) Mana tu, ago na kenjo pini, magogoso, ŋge gua.

It is not clear whether the *ŋge gua* belongs to the prayer or not ; in many cases where it occurs it has not been put down because it appeared not to belong to the prayer.

(*c*) Gore tu ago na kenjo ko mu riumua, mu koni vata kekuru, mu[ke] ranjai na tinoni.

LXXI.

(*a*) Gore tu, gau na kenjo pini ra, soana sage tu pa n'ulu.

(*b*) Mana tu gau na tomate, mi toa tu, mi magogoso tu na tinoni pini ra, mi mbuku, mi ganigani tu.

(*c*) Kolo Himi, kolo Mbuka, kolo Suloga, Hega.

LXXII.

(*a*) Na kenjo pini, mani ikogo na tinoni, mu ranja pa na tia ko mi vitigi tu tiana na tinoni.

(*b*) Irusao[n]igo, n'imburu, pini, ko ma pialigo.

(*c*) Ñge vagorego mu lomoso tu, mu imbu tu, ago na kenjo, ko ma tekugo, ma piala n'imburu.

(*d*) Ñgula (four times) pania, Leanambako, ŋgula ŋgua nia te Ñgohele, ŋge ŋgula ŋgua nia te Tuñge, ŋge ŋgula ŋgua nia te Rapo; ŋge ŋgula nia te Kive, manani tu pau Kive na Komburu, mi ke mo, mi ke mo, mi ke vioro, mi toa tu, mi ogono tu, mi imbu, ŋge guinia para na komburu.

(*e*) Njule, ŋge njuleia na vitigi, na mba, njule vagore pania ŋgua panañina pini, ko mi mbeto tu mi kalavinjiri tu, ŋge guinia na vitigi, ko mi mbeto tu.

Njule: meaning uncertain; possibly a Nduke word.

(*f*) Na vonjamboe tamugau, na tomate, na kuri, mi mbeto tu.

(*g*) Ma kenjo n'imburu pini, na tinoni mi gania, mi vitigi na tiana, mi mo, mi vioro tu, ŋge guinia pa na ŋgua kenjo pini.

(*h*) Ñge irusao imburu, kati vagore, ma irusaonigo.

(*i*) Ñge vagorea na kenjo, mi lomoso tu mi imbu paŋgoele tu, mi ke ranja pa na tinoni.

(*j*) Ñge kamu, ŋge salañia para na tinoni pini, komi toa tu, mi ke vitigi na tiana.

(*k*) Ñge vaimbu te Tuñge, manani tu Tuñge, ko mi ke vioro, mi ke kamu mba, mi ke vitigi na tiana, mi mbeto tu.

(*l*) Pupula (four times) pani, Onda, Misu, Pilu, Ari o; mi gore ko mi riu ona, ko mi toa tu na tinoni pini, mi mbuku, mi ganigani tu.

(*m*) Ñgula pania mba, njiama, mi gore ko mi riu ona ko mi toa tu na tinoni ŋge salañia pini.

(*n*) Ñgula vagore pania na njiama, na mba, gore ko mi riu ona, gore ko mi kaura.

(*o*) Pini ra na mbokolo tamugau, na tomate, ma riu ma salañia, mu lipu tu pagau mbokolo pini.

Lipu: to pay for goods received in credit.

(*p*) Nara mbatu manji tamugau na tomate, tamu Onda, tamu Misu, tamu Pilu, tamu Ari, tamugau tamania potana, ko mana tu, nara manji tamugau na tomate.

(*q*) Kamande ngoele pa Rano, gau Kamande ŋgoele pa Takapo, gau kamande ŋgoele pa Tirolivotu, gau kamande ŋgoele pa Ñarilulumbi.

LXXIII.

Mu ke varivatarunniu ago, na iku pini, mu vamatea na mbolivu pini.

LXXIV.

(*a*) Kolopiri mu nu salaña ago; ai mbeto tu na tumbu.

(*b*) Tia n'yamu tamu na tomate, mi mbeto na tumbu, mi ko ni mule.

LXXV.

Mu riu ago na gumba, mi toa tu na tinoni pini, mi vagunu njoña tu, mi ke vagia na gumba.

LXXVI.

Ñge valomoso, na sinare, mi ke vioro, mi ke mo, mi toñgo vanyata, me (ke) takombu lokana, ñge guina na tinoni, mu pausi tu pago, na sinare.

LXXVII.

Ma ñgula na masoro pini ko mi njunju na masoro, na raki, mi ogono tu, ko mi mago tu ko ma ragomia, ko mi mbeto.

LXXVIII.

Gore tu me riumiu, gau n'Añge Mate, mu koni ovai na tinoni pini ko mi toa tu, ko mu gore tu ko mu riumiu na mo, na vioro, n'Añge Mate.

LXXIX.

Pañgalanigo, ago na ndandaña, mu gore tu mu riumua, kopuni tu kami tinoni, ko mi lalagigo, ma mu gasa karovo.

LXXX.

(*a*) Na pasapasa vovonja pini, salaña Hukambule, lago kamu pa Viti, ai toa tu, ai toñgo, ai ke mō, mbeto lago pa Eñglani ; ai toa ai ke mō, mbugo ai riu ona, ai letea na kuruvete tambuna, manani tu ō.

(*b*) Gore tu na mō, na vioro, ko mi toa tu na tinoni pini, ko mi ogono, ko mi toa tu, mana tu.

(*c*) Pakua na vonjavonja tinoni pini, manani tu mu koni vamatea, mu pausi tu.

(*d*) Sa suverei pa na muñgumuñgu, sa ropa, mu koni sai, gau na tuturu, mu koni sai, gau na tomate pa muñgumuñgu, pa na kota tuturu, pa na kota tomate, mana tu gau ō.

(*e*) Mi toa tu i Huka, mi ke mō, mi ke mate, toa tu, mi ke mate.

LXXXI.

(*a*) Mana tu, gau na ñgasere, ko mi turu ko mi gania na tia ko mi ganigo, mi gania na lagu ko mi mate tinoni sa iko.

(*b*) Mu mana tu ago na ñgasere ; mu gore mu riu ona.

(*c*) Mana tu, ago na tomate, ago na ñgasere, ai toa tu na tinoni pini, mu na (? nu) mana tu.

(*d*) Nara na manji tamugau, tomate, munu mana tu, mi toñgo tu na tinoni pini, mi ogono tu mi toa tu, mi mbuku tu, mi piala tu, mu nu mana tu.

(*e*) Pini na manji, gau na tomate, na manji, na tinoni sa mō, mu nu mana tu.

LXXXII.

Mana tu gau na tomate, gore tu, ago golugolu, mu riumua.

LXXXIII.

(*a*) Mu mana tu, ago na rako, mu mana tu ko mu tome na linji, ko mu tome na penjelumu, na tiamu, ko mi ganigo ko mu mate.

(*b*) Mu mana tu, gore tu ko mu riu mua, ŋg'irusao ko ma gania.

(*c*) Gore tu ko mu riu mua, ago na kenjo, ko ma kesai imburu.

(*d*) Mu mana tu ago na tomate, mana tu, ago na rako, gore ko mu riu mua.

LXXXIV.

(*a*) Ma vaturugo, ago na kenjo, ani ganiganigo, mu nu tome pa na tia tinoni, ago na ndole ko mu gania na lagu tinoni ko i mate tu na tinoni.

(*b*) Ŋgara ganigo ko ŋge soni vasagigo, ago na mburi.

(*c*) Ma gani kenua, mbeto ma gani n'inda.

LXXXV.

(*a*) Mana tu na tomate pa Vagena, Vagena Peka, Vagena Ulu, pa Si Lavarovorovo, pa Vatirovorovo, karu ŋgoele pa Mbikolia, Siniŋgai, pa Rokana, Matovagi, gau kamande Roroto pa Gage, gau kamande Kandakita pa Lapaŋgao, gau kamande Roroto pa Gage, ago na Mateana pa Matavagi, gau karu ŋgoele pa Matavagi, gau kamande mbimbolo.

(*b*) Toa tu na tinoni pini, mana tu ago na tomate, vatoai tu, gua na tomate.

LXXXVI.

Nara na mbulemiu pagau na mbagea : sa ukaigo pepelata ko mu mana tu ; na mbulemiu pa gau na mbagea, gau na tamasa.

LXXXVII.

(*a*) Tinoni soana lani ai soana tu pa teteana.

(*b*) Na maulu gani tea tinoni tome pa na vōna.

(*c*) Na maulu, mu koni lagere pa Narovo.

(*d*) Na maulu kikerina, gau karu mu koni varimborori (? varimborimbori).

(*e*) Tinoni sa tiro na ŋgua ŋari kura pa na mani, sa kura pa n'ira, ai toŋgo pa n'ulu.

(*f*) Ma gulasa vataŋgalo ŋgau, gau n'ira, na mani, na ōlu, ma koni peima roŋiroŋi ko ma mate ara.

Roŋiroŋi is a condition like *kita*.

(*g*) Tia mborogo tamugau kakisa na tomate, na tuturu ko mu koni sai, gau na tomate, na vea ō.

(*h*) Maulu muko, ago ŋgu ikoa na macesi—Ŋgeke tekua, Tambuna pa Nduli, *or* Tambuna pa Mbiru, ŋge ke iko.

(*i*) Mu gani tea. Mu gani kende. Na kende. Na tea. Mu gani pindo, linji. Na pindo, na linji. Mu gani na kende rekoreko. Gani savo. Kumbolia na lulumu.



FIG. 1.—KUNDAITE, A WITCH-FINDER (*p.* 229).

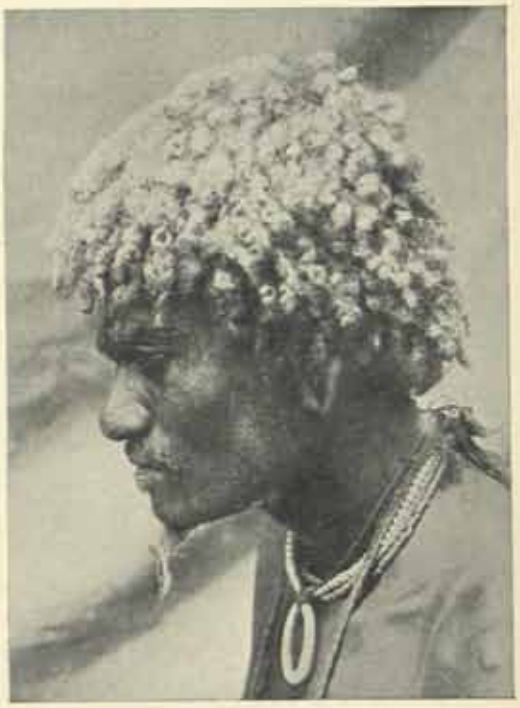


FIG. 2.—KUNDAITE.



FIG. 3.—KENJO KIRENGE (DIZZINESS TABOO) (*p.* 242).



FIG. 4.—NJIRIPELE SHRINE (*p.* 246).

MEDICINE AND WITCHCRAFT IN EDDYSTONE OF THE SOLOMONS.



FIG. 1.—PANDANJIBU, A MAN HAVING THE "EVIL EYE" (*p.* 232).



FIG. 2.—PANDANJIBU.



FIG. 3.—KENJO VITIGI TIA (*p.* 248).



FIG. 4.—KENJO MBAGEA (SHARK TABOO) (*p.* 261).

MEDICINE AND WITCHCRAFT IN EDDYSTONE OF THE SOLOMONS.

GOLD COAST "STRING GAMES."

By C. L. T. Griffith.

The following string figures were collected at the Gold Coast School of Surveying in 1921 and 1922. The large majority, all except Nos. XXIX and XXX, were taught to me by G. H. Boadi, of the Akyem Abuakwa tribe, of Begoro near Kyebi, Eastern Akim. The school was situated in the Manya Krobo district, from where only two figures were obtained. There are many more figures still to be collected, particularly from the region round Coomassie. The Northern Territories and Western part of the Colony would also probably prove a fruitful ground. I heard a rumour that in Ashanti the old people can make figures which have a derogatory or abusive signification! It is to be hoped that some resident official will be able to dig these out.

The native names and songs that go with the figures are given in the Twi (or Tshi) language, but I have not attempted to follow the local system of transcribing the words, a cumbersome and peculiar system invented by German missionaries, I believe.

The descriptions follow the lines laid down by Dr. Haddon, but I have also used the words "under" and "over" to economize space as Mr. W. W. R. Ball has done. References are made to Miss K. Haddon's *Cat's Cradles From Many Lands* (Longmans, Green and Co.) and to Mr. Ball's *String Figures* (second edition: Hefer and Sons). In many cases I give the length of the string used, as Boadi was very particular about this. In some illustrations two black dots are placed near the strings which should be pulled to make the figure disappear without tangling, as this makes the exhibition of the figures more effective. I would recommend that a "fisherman's knot" be used for making the loop. The ends can be trimmed off flush, and the knot hammered to a spindle shape that makes little obstruction. I have given the actual time Boadi took to make the figures, which will require the performer to be very skilled to equal.

Openings "A," "Little fishes" and "Navahoe" occur, and there are several new openings and movements, three of which I have named "Akim twist," "Twi loops," and "Twi extension." The last is nearly the same as the "Caroline extension" (Ball, p. 62). All three occur in string Game No. I, which is therefore put first.

Many West African tribes possess a large number of enigmatic sayings in the form of a statement and a reflection on the statement. A moral is understood. Language teachers call them riddles and answers, but the word "riddle" is hardly suitable. As an example: "Put forth your hand to touch it, but do not touch it";

"It smarts worse than red pepper." The moral of this is stated to be, "Do a thing thoroughly, or do not do it at all." Another of these "riddles" goes with string Game No. XIV: "It threatened rain, but did not rain"; "The evening will not be calm." This is explained as meaning that suppressed emotions are apt to break out badly. There is no apparent connection between the saying and the string figure that I can see or could get explained to me; the words are said while the figure is being made.

On my arrival in the Colony I asked a senior official, intimately connected with native affairs, whether string tricks were done in the Colony. He said he had never seen any, and was pretty sure that they did not exist. I got hold of them in this way. I was taking a class in knots and lashings, old R.E. work, and was having the usual fun with reef knots and "grannies," when Boadi, not to be outdone, said, "Can you do this?" and showed me the ornamental knot (Fig. 31). I copied him, and made a loop of the small rope we were using, and managed to do "Little fishes" (Haddon, p. 12). He then said that with a piece of string he could do something like that, and the road was then clear for the following *nsátia ába*, or "string games."

I.—Ants with Wings, or Birds in a Bush. (*Mfomfō nnomā ne kwaē nnoma.*)

An eight-foot string is used. (1) Place the loop hanging down equally on either side of the left arm, the proximal string over the forearm and the distal string over the wrist. (2) Pass the right hand through the radial pendent loop, then distal to the distal ulnar pendent string, then into the ulnar pendent loop from the far side (Fig. 1, A). (3) Turn the fingers upwards and draw the hand to you through the radial loop, then away from you, distal to the radial distal string and into the radial distal loop from the distal side (Fig. 1, B). (4) Extend (Fig. 1, C), producing what may be called the Akim-twist opening. (5) With the mouth, pick up, first, the right wrist proximal radial string, and, secondly, the right wrist distal ulnar string, marked in Fig. 1, C, and draw out. (6) Pick up the mouth loops between the left index and middle fingers close to the mouth, palm turned down, so as to have two short loops projecting dorsally between the left index and middle fingers. (7) Pull out these two loops about two inches and fold one down to you, and clip it between the left thumb and index, and fold the other down from you and clip it between the left middle and ring fingers. (8) With the right hand pull up the distal dorsal loops of the left index and middle fingers about one inch, and with the right index and middle fingers pick up these loops on their dorsal tips. (9) Extend, releasing the left index and middle finger distal loops, but taking care that their proximal loops do not slip off. Movements (6) to (9) may be called the Twi-loops movement. (10) Close the fingers over all the finger and palmar strings, throw the wrist loops over the fists and extend; unclench the fingers. (11) Pass the thumbs distally to the radial index strings and proximally to the ulnar index and radial middle finger

strings and proximally into the middle finger loops and return (or, shortly, thumbs over one and pick up two). (12) Pass the middle fingers away over, down and under the ulnar middle finger string which they pick up on their back tips. (13) With the thumbs press down the radial index string. Separate the hands, palms away from you. Movements (12) and (13) may be called the Twi extension (Fig. 1, D). Time, by Boadi, 13 seconds.

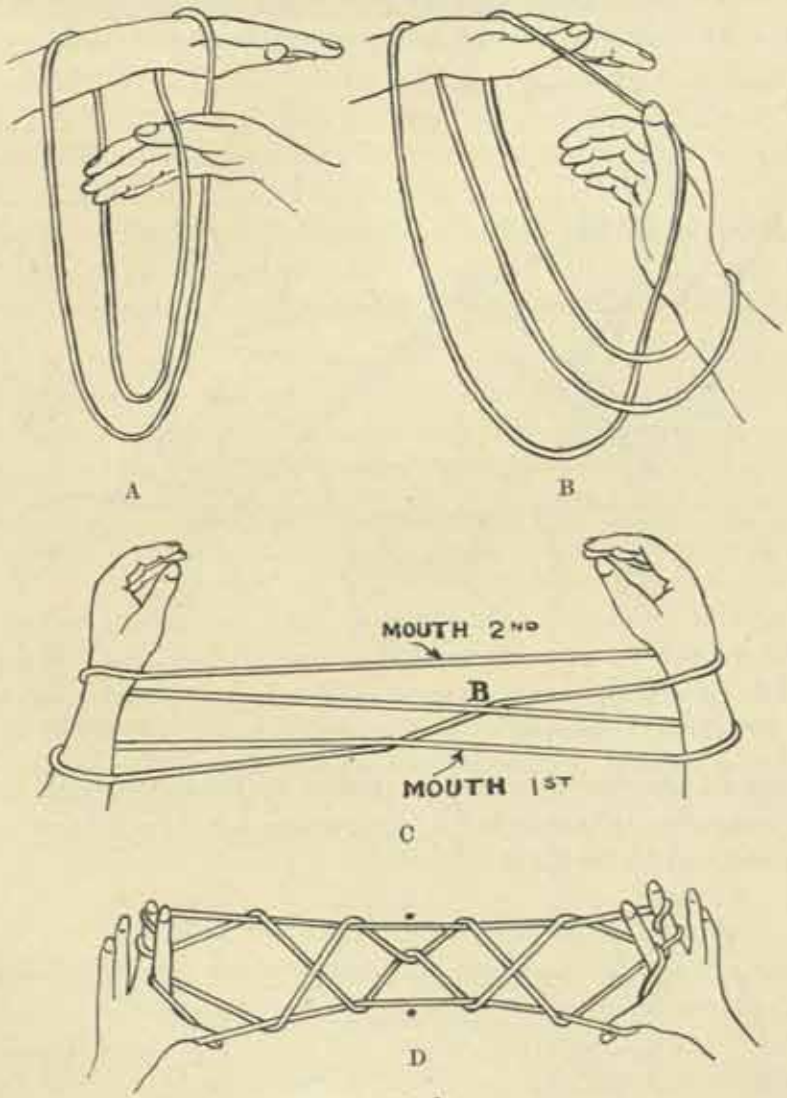


FIG. 1.

Note.—The way the strings are caught round the right and left fingers will be either as in Fig. 1, B, or the reverse, left for right, according to which loop is folded to you in movement (7). In this figure, and in most others involving the Twi-loops movement, either loop may be folded to you without affecting the result materially.

II.—A BAT. (*Oha.*)

A six-foot string is used. (1) to (4), Akim-twist opening, as in Game I (1) to (4). (5) With the mouth pick up the far cross, marked B in Fig. 1, C, and draw out. (6) to (9) Twi-loops movement, as in Game I (6) to (9). (10) Close the right thumb and fingers over the two distal strings and turn the right hand down, through the distal strings and the right wrist strings, so as to let the right wrist dorsal strings slip off; turn the hand up again, and it will have loops on the index and middle fingers only. (11) to (13) Twi extension with *right hand only*, as in Game I (11) to (13). The left

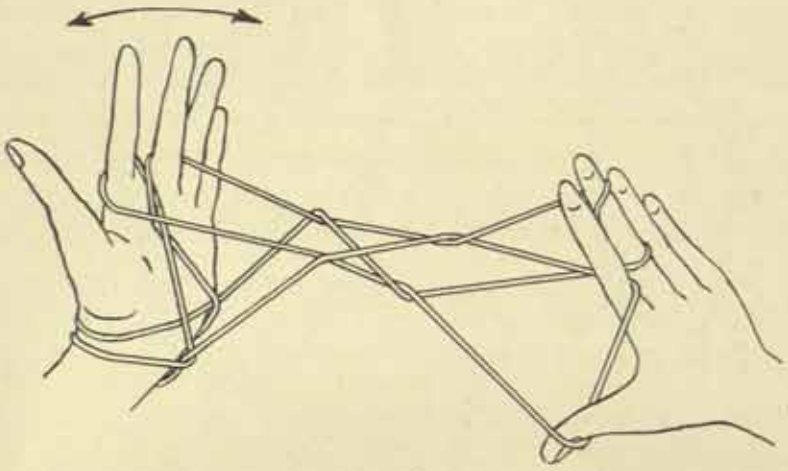


FIG. 2.

hand is held with the fingers pointed up and the right hand palm down as in Fig. 2. The left hand is then waved slowly towards and from the right hand, keeping strings tight, and the figure is supposed to represent the slow flapping of a large bat, vampire, or flying fox. Time, 11 seconds.

III.—REEDS BY THE SIDE OF A RIVER. (Called by Boadi "*Táno no nnómire*" (reeds along the Tano), and by a Coomassie boy "*Pra ho demére kóro*" (canes only by the Pra)).

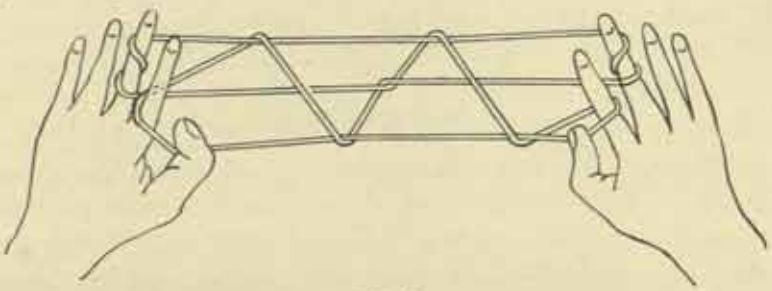


FIG. 3.

A six- or eight-foot string is used. (1) to (4) Akim-twist opening as in Game I (1) to (4). (5) With the mouth pick up the strings marked 1st and 2nd in Fig. 1, C

and draw out, and throw off the *distal loops only* from both hands, and let these loops hang down from the mouth between the hands. (6) to (9) Twi-loops movement, as in Game I (6) to (9). (10) Grasp the strings with the fingers closed and throw the remaining wrist loops over the fists. All strings now are on the index and middle fingers. (11) to (13) Twi extension with both hands, as in Game I (11) to (13). Time, 9 seconds.

IV.—A Chief's Hammock. (*Áhennam.*)

An eight-foot string is used. (1) to (4) Akim twist opening as in Game I (1) to (4). (5) to (9) Pick up strings with mouth and Twi loop them as in Game I (5) to (9). (10) Pass the thumbs over the radial index string and pick up from below the ulnar index and radial middle finger strings, close to the fingers, and return. (11) Clasp the fingers over the ulnar middle finger and the palmar strings, and turn the hands down through the wrist radial and ulnar strings and extend with fingers pointing away from you and palms facing out. This produces the hammock (Fig. 4). Time, 9 seconds.

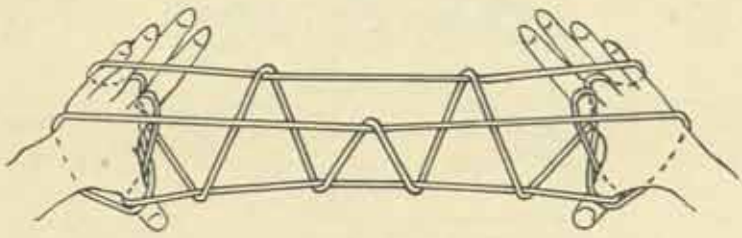


Fig. 4.

From this figure the first figure can be obtained:—Turn the hands up again, letting thumb loops and ulnar little finger strings slip off. There is a loop on each index and middle finger as in Game I (11) which may be completed. Thumbs over one and pick up two, followed by Twi extension.

V.—An Ant's Hammock. (*Tétea apakáne.*)

A five-foot string is used. (1) Hold the string at points about six inches apart, and move the left hand away from you and to the right so as to make a small loop. Insert the fore fingers in this loop from the far side, turn the fingers up and extend, making a double loop on the indices, parallels in front and a cross behind. The string from the bottom of the left to the tip of the right index must be *in front* of the other string forming the cross. (2) Pass left little finger under the left proximal ulnar index string, which it picks up on its back tip and returns, and pass the right little finger under the right distal index string, which it picks up on its back tip and returns. (The same string is taken up by the two little fingers.) (3) Both thumbs

pass over the proximal radial indices string, the left thumb picks up the left distal ulnar index string and returns, and the right thumb picks up the right proximal ulnar index string on its back and returns. This is the far string of the original back cross. (4) Both middles pass over the distal radial index string and pick up on their back tips the proximal radial index string, running straight across from finger to finger, and return. (5) Both thumbs press down the distal radial indices string near the indices, letting the loops they had on slip off. (6) Turn your hands to face away from you, and keep the index and middle fingers pressed together, and stretch the figure tight. By bending these fingers hook the string running from tip to tip to you, then down and away from you, so as to dive under the string joining the little fingers. Turn the palms of the hands outwards and extend, producing the ant's hammock. It is more like a rustic garden seat. Time, 5 seconds. To undo, release all except the indices.

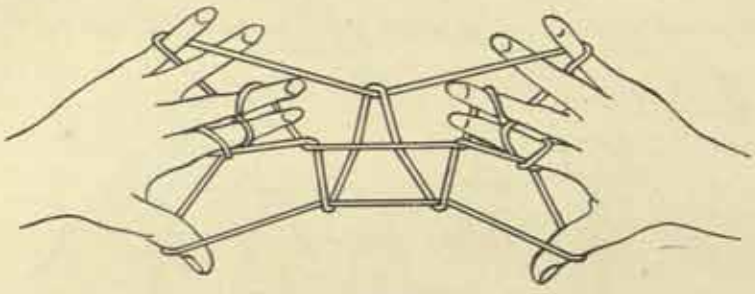


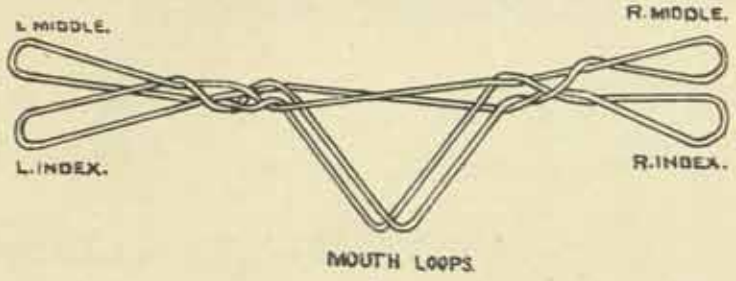
FIG. 5.

VI.—Leopard Skin. (*Ókyem ákyiri átea*, Leopard back fur.)

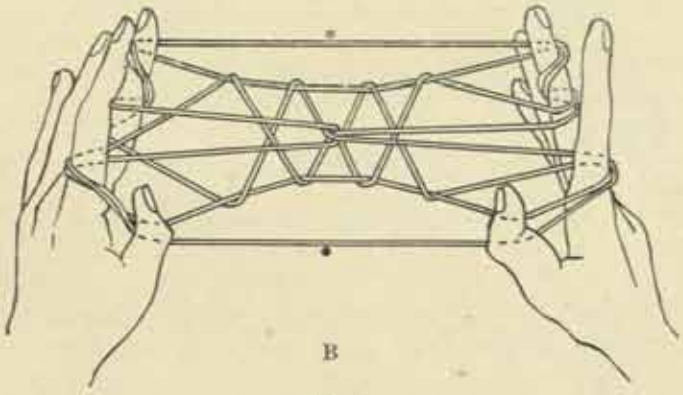
An eight-foot string is required. (1) to (13) Make "Birds in a bush," String Game No. I. (14) Stick out your tongue into the triangle under the central cross of Fig. 1, D, and hook back the central cross with its turned up tip. Hold these two loops firmly with your lips, and pull out so as to make a big triangle. Release the top twists of the middle fingers and the thumbs (Fig. 6, A). (15) Bring the left hand near the mouth, back upwards, and pass the index under and the middle finger over the two mouth loops. Clip the loops between the fingers and release mouth. (16) Fold down these two short loops standing up between the left middle and index fingers, one loop to you and the other from you, keeping them in position with the thumb and ring finger. (17) There are now *three* dorsal strings on the left index and middle fingers. Pull up the *centre* loops about one inch. (18) Pick up these two short upstanding loops on the tips of the right index and middle fingers. Separate the hands, drawing the right index and middle finger loop strings from between the left fingers, and taking care that the distal loops on the left fingers are not pulled off. Movements (15) to (18) may be described as Twi mouth loops, and take up *centre* loops from the left hand. (19) Pass the thumbs over both radial index strings (one

runs straight across and one runs through the complex plait in the centre of the figure) and pick up on their back tips the four strings that go between the index and middle fingers, and return. (20) Bend the middle fingers down away from you and pick up on their back tips both their ulnar strings. (21) With the thumbs press down both the radial index strings, letting the four strings slip off the backs of the thumbs. Extend, making the "Leopard skin," as in Fig. 6, B. Movements (19) to (21) may be described briefly as Twi extension on double strings. Time, 35 seconds.

Whether the figure will come out correctly or not depends on which loop is folded down to you when doing the Twi movements. If the wrong one is folded down to you the resulting figure will be practically the same as the "Parrot's nest,"



A



B

FIG. 6.

which is given next. So, also, in that game, if the Twi is done wrongly the "Leopard skin" will result. The man who showed these games never made a mistake, but in less skilful hands the two figures come about equally frequently. It is curious that so similar figures should have such different openings.

VII.—The Parrot's Nest. (*Nko bon áno* (Parrot-hole-edge, and represents the orifice of a parrot's nest in a tree stump).)

An eight-foot string is required. (1) Hold a double loop hanging in the right hand, and clip this double loop between the left index and middle fingers about

three inches from the top. Release the right hand. (2) Fold down one of these upstanding loops to you, and clip it between the left thumb and index, and fold the other down from you and clip it between the left middle and ring fingers. (3) With the right hand pull up the distal dorsal loops of the left index and middle fingers about one inch, and with the right index and middle fingers pick up these loops on their dorsal tips. (4) Extend, releasing the left index and middle finger distal loops, but taking care that their proximal loops do not slip off. Movements (1) to (4), shortly; Twi loops to a simple double loop. (5) Thumbs over three strings and pick up the ulnar middle-finger string and return. (6) With the right hand take the left index loop off its finger, pass the loop under the palmar string and replace it on the index above the palmar string. Repeat with the right index loop. Release

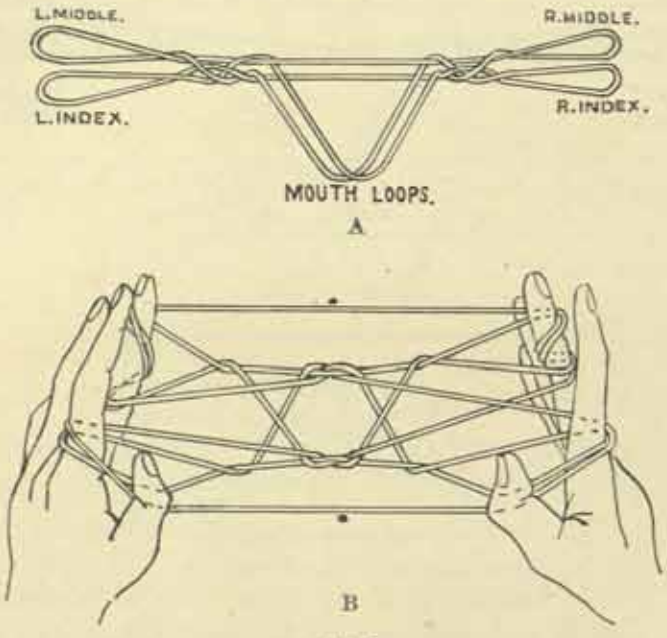
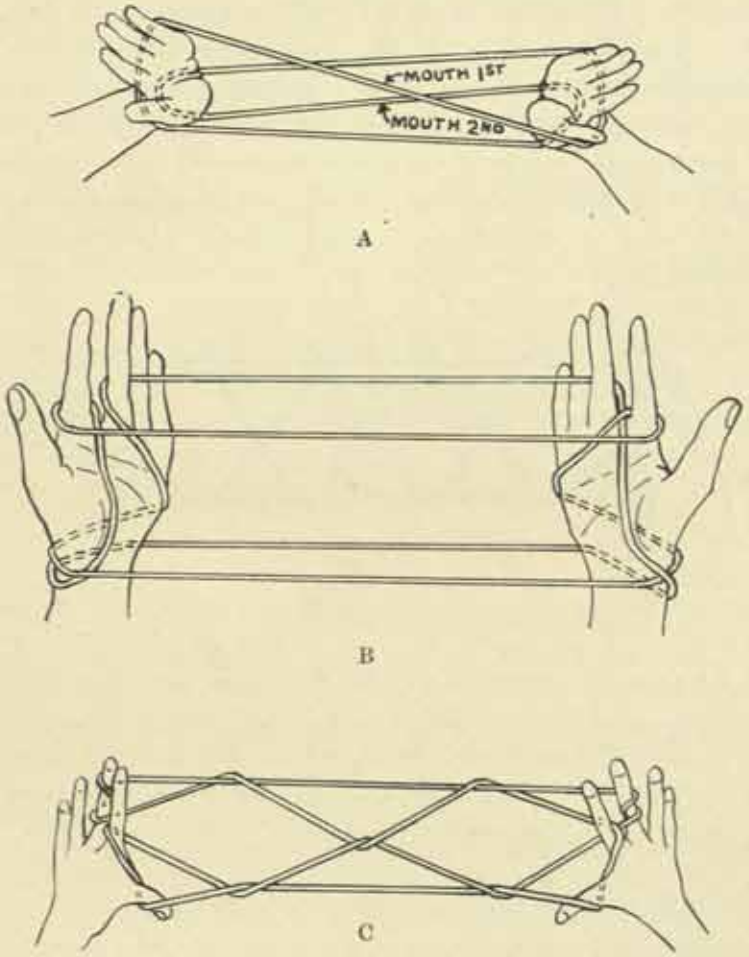


FIG. 7.

thumbs. (7) Repeat movement (5). (8) Repeat movement (6). Release thumbs. (9) Thumbs over one and pick up two strings. (10) Bend the middle fingers down away from you, and pick up on their back tips their own ulnar strings. (11) With the thumbs press down the radial index string, letting the two strings slip off the backs of the thumbs. Extend, palms away from you. This produces a figure very like Fig. 1, D, but there is a simple central cross instead of the looped central cross shown there. The remainder of the movements of this figure are exactly the same as those numbered (14) to (20) of the "Leopard skin," Game No. VI. The string that is *nearer* to you of the central cross that is taken up by the tongue is the one that must be folded *to* you in the subsequent Twi movement, or the entrance to the nest will be closed. Time, 35 seconds.

VIII.—Double Diamonds. (No native name.)

An eight-foot string is used. (1) Place the loop hanging down equally on either side of the left arm, the proximal string over the forearm and the radial string over the wrist. (2) Pass the right hand and wrist radially into the two pendent loops and extend. (3) Bring the hands up to the head so that the palms are near the ears, and with the mouth take hold of the two crossing central strings, shown on



A

B

C

FIG. 8.

Fig. 8, A, and draw out, forming a large triangle. (4) to (7) Pick up the loops from the mouth with the left index and middle fingers, and continue the Twi-loops movement as in Game I (6) to (9), producing Fig. 8, B. (8) Close the fingers over all the finger and palmar strings, throw the wrist loops over the fists and extend, unclenching the fingers. (9) Thumbs over one and pick up two. (10) and (11) Twi-extension movement as in Game I (12) and (13). Time, 15 seconds.

IX.—BIRDS ARE IN THE GRAIN. (*Nomá nomá nkodí auwí.*)

This gives the same net-work as Game No. I, but by another manipulation, and the way it is caught on the fingers is different. A six- or eight-foot string is used. Keep the strings slack while the figure is being made. It is difficult to finish with the central cross in the centre and the diamonds well formed. If you work tight, the central cross may come out at, or over, the top, when quite a different figure results. (1) to (4) Exactly the same as the Ant's Hammock, Game No. V, movements (1) to (4). (5) With the mouth, take up the right distal palmar middle-finger string. Draw down the middle finger and release its dorsal loop. Pass the right middle finger over the string that it has just dropped and pick up the mouth string on its back tip. Do the same on the left side. (6) With the thumbs, press down the distal palmar strings of the middle fingers and release the little fingers. Extend palms away (Fig. 9); then say, "*Nomá nomá nkodí auwí.*" (7) Then shout "*Fwe!*" i.e., "*Shoo!*" Release thumb and middle-finger loops suddenly, and the birds have flown away.

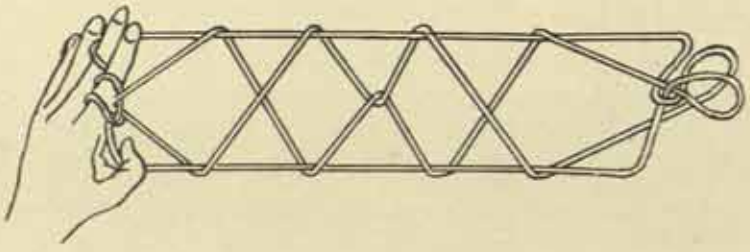


FIG. 9.

The working of the figure is easy, if the strings are kept slack, but Europeans find it difficult to pronounce properly the word I have spelled "*Fwe.*" To attempt the "*Fw,*" purse up your mouth as if about to whistle, press down the tip of the tongue, and try to say "*Sh*" without moving the tongue. The "*e*" is very short, and as you say it the corners of the lips are drawn back sharply. Time, 10 seconds.

X.—THE SNAKE CLIMBING A TREE. (*Ówo nkofóro adóbe.*)

The "adobe" is a tree that grows on the banks of rivers. An eight-foot string is used. (1) Make a double loop of the string. Holding the double loop in the right hand, twist the double string clockwise twice round the left wrist. (2) The right hand places the double loop it is holding between the index and middle fingers of the left hand, which is held palm downwards. The loops project upwards a couple of inches. It makes no difference whether the left wrist radial or the left wrist ulnar strings are placed proximal. (3), (4) and (5) Continue the Twi-loops movement as in Game I (7) to (9). (6) Clench the right and left fingers over their strings, and, by rotating the right hand twice round the left clockwise, remove the loops from

the left wrist. Extend and draw tight. Open the fingers. (7) Pass the thumbs over the radial index strings, and under the two twisted strings, that are between the index and middle fingers, which they pick up on their back tips and return. (8) and (9) Twi-extension movement as in Game I (12) and (13) (Fig. 10). Time, 8 seconds.

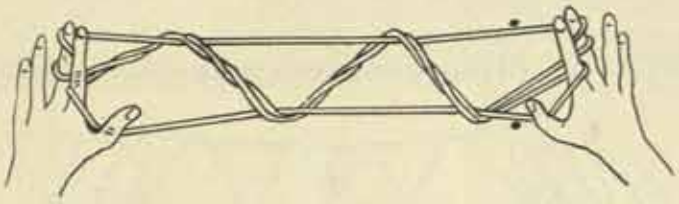


Fig. 10.

XI.—The Wave. (No native name known, but my name for it was considered quite appropriate.)

A six-foot string is used. (1) Wrap the string twice round the left wrist clockwise. (2) Pick up the long pendent loop with the right hand, and make a loop about six inches long at the end of the long loop. (3) Holding the two strings where they cross with the thumb and index of the right hand, pass the four strings between the index and middle fingers of the left hand, held palm downwards, so that two short

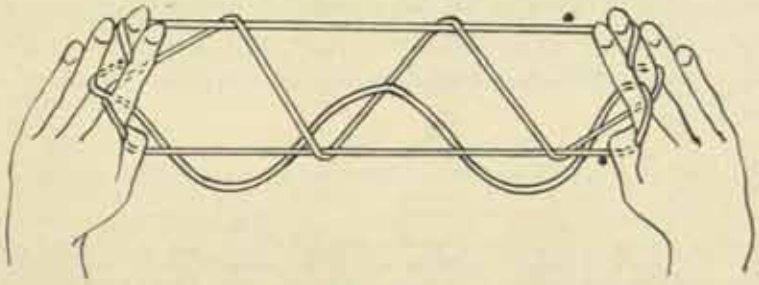


Fig. 11.

loops project upwards dorsally between the left index and middle fingers. (4), (5) and (6) Continue the Twi-loops movement as in Game I (7) to (9). (7) Clench the fingers of both hands over their four strings in each, and pass the right hand twice clockwise round the left, so as to remove the loops from the left wrist. Extend. (8) Thumbs over one and pick up two strings. (9) and (10) Twi-extension movement as in Game I (12) and (13) (Fig. 11). Time, 12 seconds.

XII.—Four Diamonds. (No native name.)

A six-foot string is used. (1) Twist the string twice round the left index. Insert the right index proximally into these loops and extend. This is the "Little fishes" opening (K. Haddon, p. 12). (2) Pass the thumbs over the proximal radial index

string and pick up on their backs the two ulnar index strings. Return under the distal radial index string. (3) Release the index distal loops. (4) The indices bend down away from you, then turn to you lifting up their radial string, then turn down to you over the ulnar thumb string, then further down and away from you under this string, which they pick up on their back tips. (5) Release thumbs and extend. (6) Thumbs over one and pick up two strings and release index distal loops as in movements (2) and (3). (7) Repeat movements (4) and (5), only this time the string

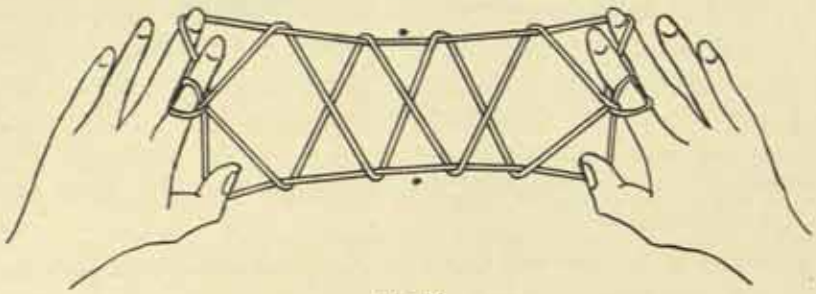


FIG. 12.

first lifted up by the index does not pass straight across, but is caught in the centre in a general twist of the strings. (8) Thumbs over one and pick up two strings, as in movement (2). This time the index distal loops are not released. (9) Pass the middle fingers over the distal radial index string and under the proximal radial index string, which they pick up on their back tips. (10) With the tips of the thumbs press down the strings which are palmar to the middle fingers, and extend (Fig. 12). Time, 12 seconds.

XIII.—AN ORCHID (?). (*Tetéa tre.* Explained as a plant that grows on the top of leaves.)

A six-foot string is used. (1) As in Game XII (1), but twist the string counter-clockwise round the left index. (2) to (5) As in Game XII (2) to (5). (6) and (7) As

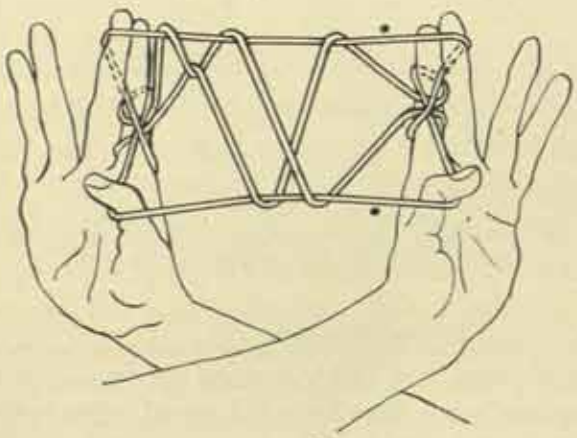


FIG. 13.

in Game XII (6) and (7), but with the *left hand only*. (8) to (10) As in Game XII (8) to (10). The radial thumb string is caught in the centre of the figure over the ulnar middle-finger string. This has to get untwisted. (11) Rotate the left hand away from you and down, then up to you, bringing it up between your right hand and body, palm facing you. At the same time rotate the right hand counter-clockwise half a turn and move it to the left. The hands cross at the wrists, palms facing you, and the left hand nearer to you than the right. (12) Arrange the loops neatly with your mouth. (Fig. 13.) Time, 15 seconds.

XIV.—Rain. (This is the figure that accompanies the so-called riddle referred to in the introduction.) The following Twi words are said while the figure is being made:—"*Téde kóde, ósuo béto, wányõ ánnto; ónwunu nkódwo fomm*": "It threatened to rain, but did not rain; the evening will not be calm."

A six-foot string is used. (1) Holding the string with the fingers of the two hands about three inches apart, make a small loop away from you. Insert the indices into the small loop and the thumbs into the large pendent loop. Separate

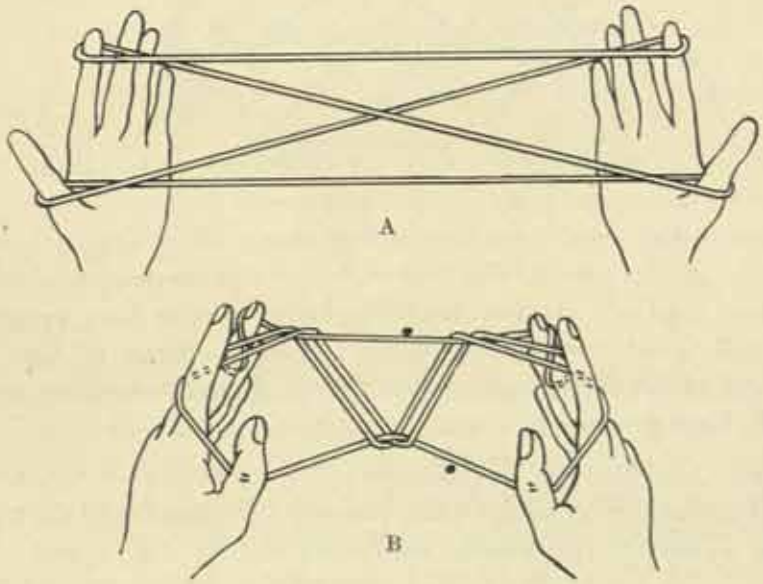


Fig. 14.

the hands with the palms away from you until the strings are tight and form a broad figure of eight, then turn the palms to face each other, the tips of the thumbs passing under, and clear of, the index strings. (This is the "Navahoe" opening. Ball, p. 10.) (2) Pass the thumbs over the radial index string and under the ulnar index strings, which they pick up on their back tips and return. (3) Pass the middle fingers over the radial index string and pick up the ulnar thumb string on their back tips, and return. (4) Release thumbs and extend. (5) Pass the thumbs over the

radial index string and pick up on their back tips the two strings that pass between the index and middle fingers, and return. (6) Pass the middle fingers away from you and down, then under the ulnar middle-fingers string, which they pick up on their back tips, and return. (7) With the thumbs press down the radial index string, letting the two strings on the backs of the thumbs slip off. (Fig. 14.) Time, 5 seconds.

XV.—The Water Tortoise. (*Osúdanna.*)

An eight-foot string doubled produces the best effect. Fig. 15 is drawn, for clearness, as with a single four-foot string. The description also is worded as if a single loop were used. (1) Opening "A," using the middle fingers to pick up the opposite palmar strings. (2) Pass the thumbs over three strings and pick up on their back tips the radial little-finger strings. (3) Turn down the middle fingers into their loops so as to hold down the palmar strings crossing over the loops. (4) With

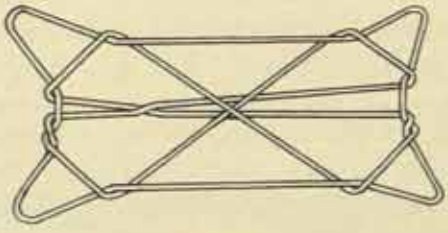


Fig. 15.

the mouth take the radial thumb string in the centre and draw out a little. (5) Lower the tips of the thumbs and bring them up again outside the mouth strings. (6) Bend the thumbs so as to hold down their palmar strings, the mouth strings. Release mouth loop. At this point it helps to press the tips of the thumbs and middle fingers of each hand together. (7) Turn the hands, fingers pointing down, knuckles facing inwards, and extend, releasing little fingers. When the strings are tight, open the thumbs and middle fingers to the fullest extent. Drop the figure on the ground. (Fig. 15.) Time, 8 seconds.

XVI.—The Land Tortoise. (*Akyekyedie.*)

String and remarks as for the Water Tortoise. (1) "Position I"[1] on both hands. Then pick up the left palmar string from above with the right middle finger, turn

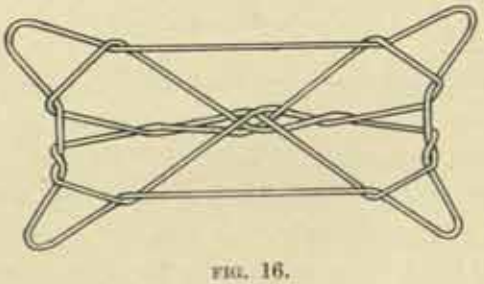


Fig. 16.

[1] *See* note at end of paper.

up towards you and return so as to make a twist in the cross loop. Repeat with the left middle finger through the right middle-finger loop. (2) to (7) As in Water Tortoise, Game No. XV, movements (2) to (7). (*See* Fig. 16.) Time, 10 seconds.

XVII.—The Rapids. (*Ohóroto.*)

A six-foot string is used. (1) Opening "A," using the middle fingers to pick up the opposite palmar strings. (2) Turn all four fingers of both hands down through the little-finger loops, then away from you, up and return, so that the former ulnar string is now dorsal to three knuckles and becomes the radial index string. (3) Turn the first three fingers down through the thumb loops, and up to you, picking up the radial thumb string, which now goes round three knuckles and becomes the ulnar ring-finger string. All strings are now on the first three fingers. (4) Pick up both radial index strings with the backs of the thumbs and let the two long dorsal strings

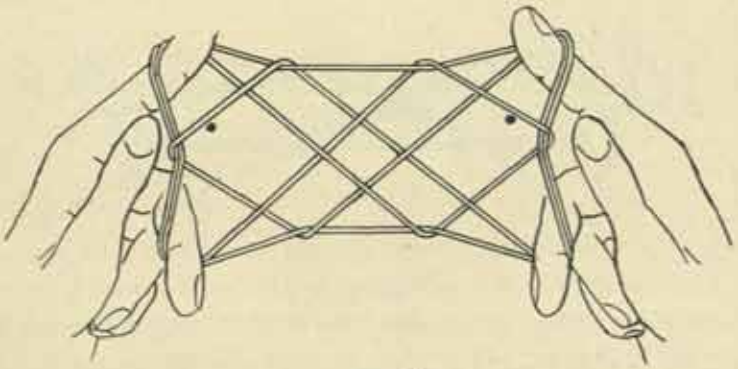


Fig. 17.

of each hand slip over their fingers to the front. The dorsal middle-finger loop must not be moved. This movement should be done without using the right hand to remove the left dorsal loops and *vice versa*. (5) Turn the index and middle fingers down into the thumb loops and pick up the radial thumb strings, releasing thumbs. (6) Pick up both radial index strings with the backs of the thumbs, and let the two dorsal loops from thumbs to ulnar side of middle fingers slip over the index and middle fingers to the front. (7) Turn the index and middle fingers down through the thumb loops close to the thumbs and up to you, picking up both radial thumb strings. Release thumbs. (8) Pass the thumbs under the radial index strings and into the middle-finger loops proximally and pick up with their back tips the radial middle-finger string and return. (9) With the middle fingers clip down the two radial index strings, release thumbs and extend the figure on the indices pointing away, and on the palmar tip of the middle fingers turned to you. (Fig. 17.) Time, 6 seconds.

XVIII.—Copper Dish. (*Sánnya mátuso.* A copper dish with a cover, as used for keeping jewellery in, or small articles.)

An eight-foot string is used. (1) Position I on both hands. (2) Insert the right hand in the left palmar loop from below, so that the string rests on the back of the right wrist. Repeat with the left hand. (3) With the left thumb and index, catch hold of the right ulnar thumb and radial little-finger strings near those fingers. Withdraw the right thumb and little finger from their loops. Turn the right hand down and away from you, to you and up, so as to give a twist to the right wrist loop, and insert the right index into the former right thumb loop, and the right ring finger into the former right little-finger loop. Release the strings held by the left thumb and index. Repeat on the left hand. (4) With the left hand pick up the right wrist loop and replace it on the right middle finger. Repeat on the left hand. (5) Pass the thumbs over the radial index string and pick up on their back tips the four strings on either side of the middle fingers. (6) Turn the ring fingers down and away from

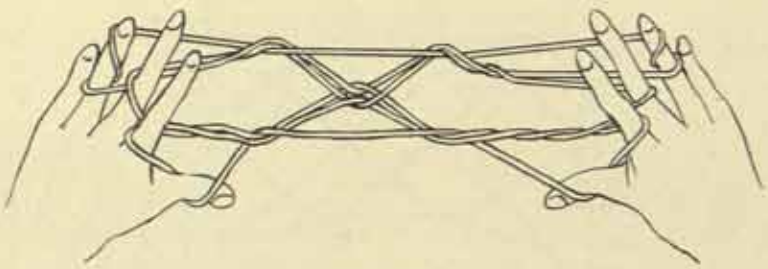


Fig. 18.

you, and pick up on their back tips their ulnar strings. (7) With the thumbs press down the radial index string. Extend palms away from you. (Fig. 18.) Time, 25 seconds.

XIX.—Goat's Beard, followed by Earth, Heaven, and Stars. (*Aguánini Kómuna; Asáse; Osorb and Nsóroma.*)

An eight-foot string is used. (1) Opening "A," using the middle fingers to pick up the opposite palmar strings. (2) Put the little-finger loops on to the ring fingers and the thumb loops on to the indices. (3) Pass the thumbs over five strings and pick up the ulnar ring-finger string on their back tips, and return. (4) Take the loops off the indices, pass them under the palmar strings and replace them on the indices without twisting the loops. Release thumbs. (5) Pass the thumbs over five strings and pick up on their back tips the ulnar ring-finger string, which this time is caught in the centre of the figure. (6) Repeat movement (4). Release thumbs. (7) Pass the thumbs over the radial index string, and with their back tips pick up, close to the ring fingers, the four strings on either side of the middle fingers. (8) Pass

the ring fingers away from you and down, to you and up, picking up on their back tips their ulnar string. (9) The thumbs press down the radial index string. Extend,

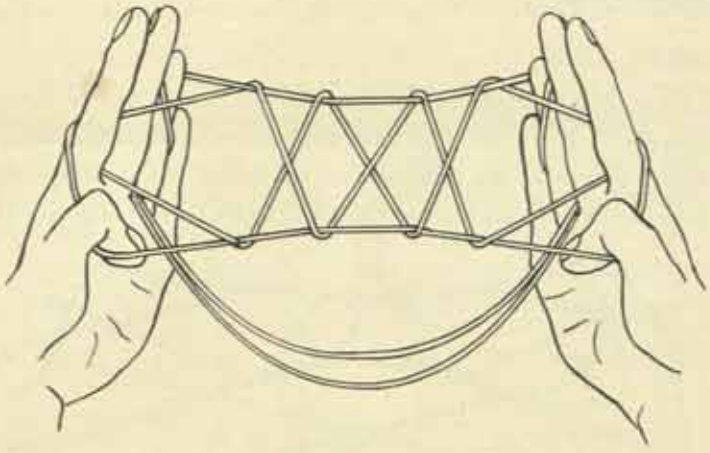


Fig. 19A.

with the fingers pointing away from you, not upwards, and palms facing. (Fig. 19A.) The double hanging loop is the Goat's Beard. Continue with :—

XIXB.—The Earth. (*Asáse.*)

(10) Release the thumbs and the top twist on the ring fingers, and extend, fingers pointing upwards. This gets you back to the end of movement (6). (11) Take the loops off the ring fingers and turn them over, to you, so as to untwist the loops, and drop these loops over the whole hand so as to rest on the back of the wrist. There

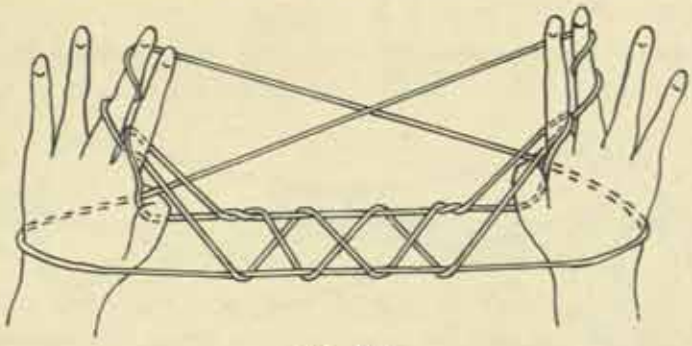


Fig. 19B.

is now a cross in front, with three strings in each upper arm, much knotted in the centre, and a single-string cross behind. (12) Pass the thumbs over the radial index string and pick up on their back tips the two strings between the index and middle fingers. (13) Turn the middle fingers away from you and down, to you and up, picking up on their back tips their ulnar strings. (14) With the thumbs press

down the radial index string and extend, fingers up, palms away and thumbs pointing forwards. (Fig. 19B, a horizontal net with a St. Andrew's Cross in a vertical plane above.) Continue with :—

XIXC.—Heaven. (*Osoró.*)

(15) Release thumbs and the top loops of the ring fingers, getting back to the end of position (11). The wrist loops must be low on the wrists and radial to the root of the thumbs. (16) Pass the thumbs over the radial index string and pick up on their back tips the two strings between the index and middle fingers. (17) Turn the

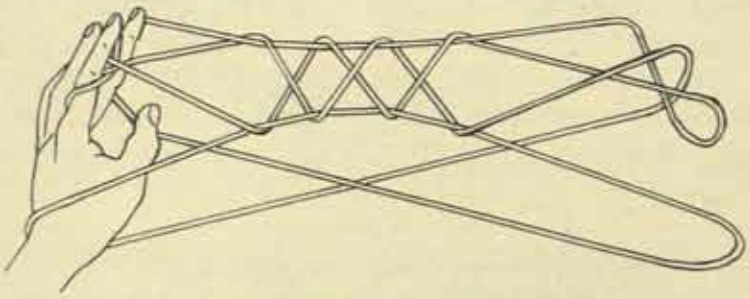


Fig. 19C.

middle fingers to you and pick up on their back tips the radial index string, without letting the dorsal loop slip off the middle fingers. (18) Extend, the thumbs pressing down the ulnar middle-finger string and letting the two loops on the backs of the thumbs slip off. (Fig. 19C, a horizontal cross with a horizontal net over.) Do not let the wrist loops slip up the backs of the hands. Continue with :—

XIXD.—Stars. (*Nsóroma.*)

(19) Turn the hands to face each other, with fingers pointing upwards, and at the same time turn the tips of the thumbs up into the triangles at the tips of the

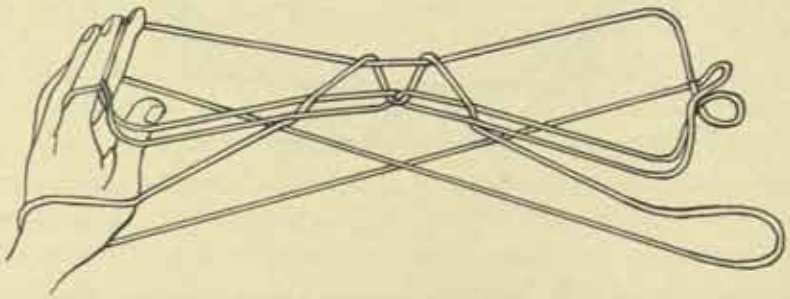


Fig. 19D.

middle fingers, catching back the two strings that are knotted together on the indices. (Fig. 19D, a horizontal net with three small triangles in the centre, and a vertical St. Andrew's cross below.) Time for the whole group, 30 seconds.

XX.—The Horned Snake and Somersaults. (*Onaka tiri* and *Pre*.)

I was informed that the *Onaka tiri* is the horned snake (asp ?), and that "its bite is not poisonous, but the horns are. If you tread on his horns, and have sores on your feet, you will die." *Pre* is a Twi word, the "*e*" very short, that means to press downwards with the tip of your finger to make a thing jump. This was illustrated with a coin, which was made to jump as the counters do in the game of "Tiddleywink." Two performers, P. and Q., are required. A string three to four yards long is required.

(1) Q. holds up his right index, and P. wraps the string once and a-half times, clockwise, round it, holding the long end of the loop in his left hand, all four fingers in the loop, palm upwards. (2) P. inserts his right index distally into the dorsal string on Q's. left index and pulls this string towards himself until his left hand is hauled up

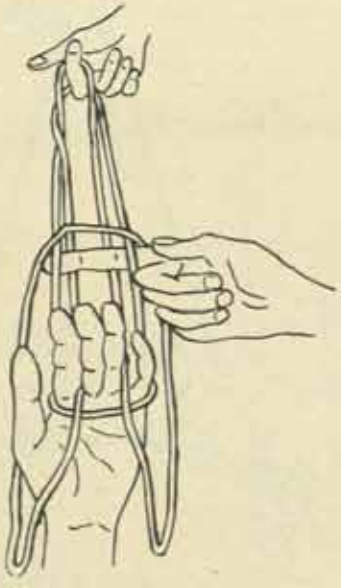


Fig. 20A.

about half-way between his, P.'s, right hand and Q.'s left. The two strings which P. has been pulling with his right hand must be made to pass the one between his upturned index and middle fingers and the other between the ring and little fingers of his left hand. (3) P. moves his right hand away from him and drops the loop he has been holding across the four strings running between the players. (4) P. passes his right index, palm upwards, from right to left, between his left hand and the loose loop of movement (3), under the right, over the two middle and under the left strings running between the players. (*See* Fig. 20A.) (5) P. releases his left hand and with his left index picks up the loop resting on his right index tip and separates his hands a little. Do not pull too tight, but keep the figure open as shown in Fig. 20B. This represents the horned snake's head.

(6) P. puts the whole of his hands upwards through the loops he has been holding with his indices, so that a loop rests on each wrist, and turns his palms to face Q. (7) P. passes his indices over the far cross string (B, B in Fig. 20B), hooks it towards him, turns the tips down, then from him and up, picking up the bases C, C of the little triangles on their backs, while the middle fingers pass down outside, under and up inside the outer strings between P. and Q., which are picked up on the backs of these fingers. Q. leaves go his two loops and P. separates his hands, palms facing. (*See* Fig. 20, C, showing P.'s left hand.)

(8) P. now grasps the three finger strings in his fingers and throws off the loops from his wrists, and extends. (9) P. with his right fingers removes the loops from

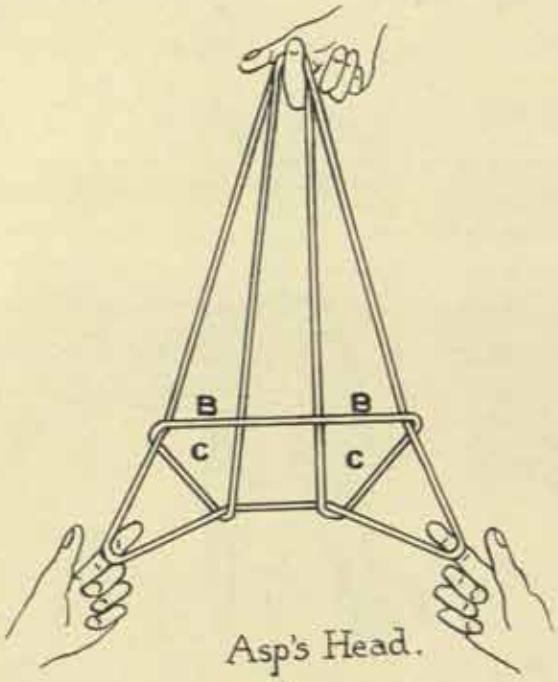


FIG. 20B.

his left index and middle fingers, turns them over away from him, and replaces the former index loop on his left middle finger, and his former middle-finger loop on his index, and extends. (10) P. passes his thumbs over the radial index string, and under the two strings which go between his index and middle fingers, which he picks up on their back tips and returns. (11) P. turns his middle fingers away, down and under the middle-finger ulnar strings, picks them up on the back tips and returns. (12) P. presses down with his thumbs the radial index string, letting the loops on the back of the thumbs slip off. This produces Fig. 20, D.

(13) Q. now crooks and separates the index and middle fingers of his right hand and pushes the tips through the net, the index through F and the middle through M,

and then hooks them back, to himself, through G and N, as shown in Fig. 20, D. (14) P. releases the top turn, only, of the loops round his indices and brings his hands together. He then turns his right hand over, fingers pointing downwards, and places his right index tip to touch his left index tip, and his right middle tip to his left middle tip, and slips the loops off the right index and middle fingers on to the left index and middle fingers, respectively, and removes his right hand. (15) P. and Q. simultaneously transfer their loops on to their respective indices, backs of the hands towards each player, and separate their hands a little. They now have their four indices pointing up, and spread out between them is the double net shown on Fig. 20E.

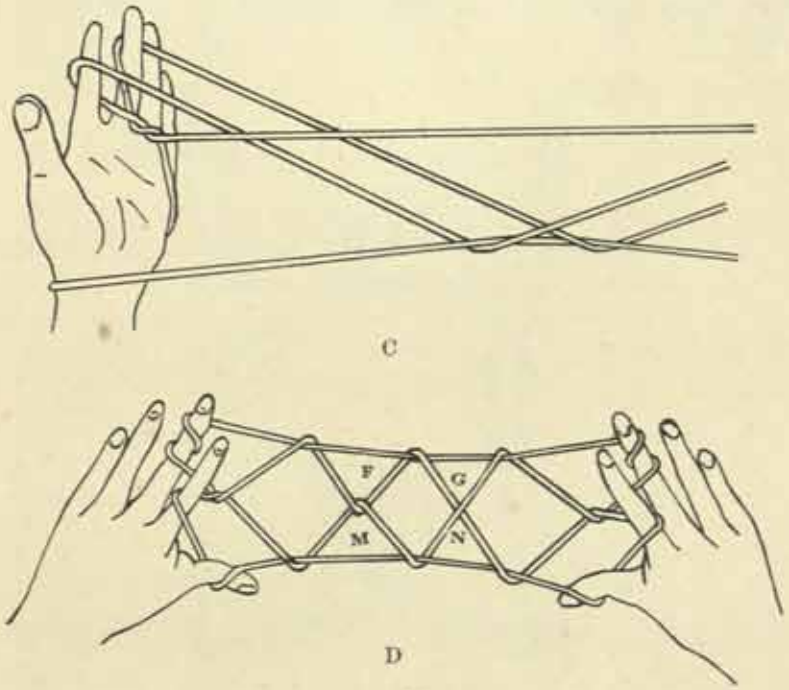


FIG. 20.

(16) P. and Q. now turn their hands to face the centre of the net, and get a middle finger by the side of each index, in each corner triangle. Bending their fingers forwards, and with the tips of the thumbs to help, they catch hold of the double strings forming the sides of the central diamond, turn their fingers downwards and pull, letting the former dorsal finger strings slip off, and making another net very like the last.

(17) Keeping the thumb and finger tips together, they turn their hands so that the fingers point upwards, and for a moment the net is held on the thumbs. They now slip their fingers upwards into the corners of the net and release the thumbs.

(18) to (27) Movements (16) and (17) are now repeated five more times each, singing the song given below. The song commences at the beginning of (16) and the

word "*pre*" is said as the new net is formed, with a jerk, at the end of (16), (18), (20), (22), (24) and (26). The net is raised about a foot in the air, slowly, each time, and lowered quickly on the word "*pre.*" There must be an even number of these double movements; if an odd number is done a tangle will result in what follows.

(28) The net is now laid on the ground, as Fig. 20E. P. takes the two nearer corners which are uppermost, marked "Lift," raises them and lays them down on the ground away from him, reproducing Fig. 20, D. It is polite at this point to express surprise that the net is not at all tangled up after the turning inside out that it has received.

(29) P. now comes round to the side of the figure, puts his index and middle fingers from underneath into the corner triangles, and lifts up the long-shaped net. The position at the end of movement (8) has now been recovered, and the game can be repeated from movement (9) onwards as long as you like.

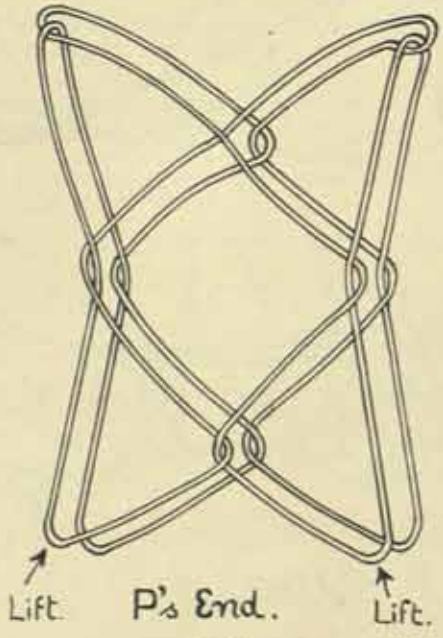


FIG. 20E.

The song to be sung from movements (16) to (27) is as follows:—

(16) "*Yeko-o hane afuom? O-o-o Pre!*"
(18) "*Yeko-o owura 'Boadi' afuom, O-o-o Pre!*"
(20) "*Oma-a yen de-en ben? O-o-o Pre!*"
(22) "*Oma-a yen bayesin. O-o-o Pre!*"
(24) "*Mede mekoto-o pata. O-o-o Pre!*"
(26) "*Aboa bi abefa adi! O-o-o Pre!*"

Translation.—"To whose farm did we go? Oh Pre! We went to Boadi's farm. Oh Pre! What did he give us? Oh Pre! He gave us a piece of yam.

Oh Pre! I put it on the grass-drying rack. Oh Pre! A wild beast has come and eaten it! Oh Pre!"

The name in the second line would be the name of the player P., at any rate the first time. At the repetitions you could give the name of the player Q., and then the onlookers.

The time for the figure, once round, from movement (1) to the end of (28) is 45 seconds, including the song.

XXI.—Buffalo Skin (pegged out). (*Tórom nhomá.*)

An eight-foot string is necessary. (1) Place the loop over the back of the index, middle and ring fingers of both hands, strings passing between the thumb and index fingers and between the ring and little fingers. (2) Pull out the left dorsal loop with

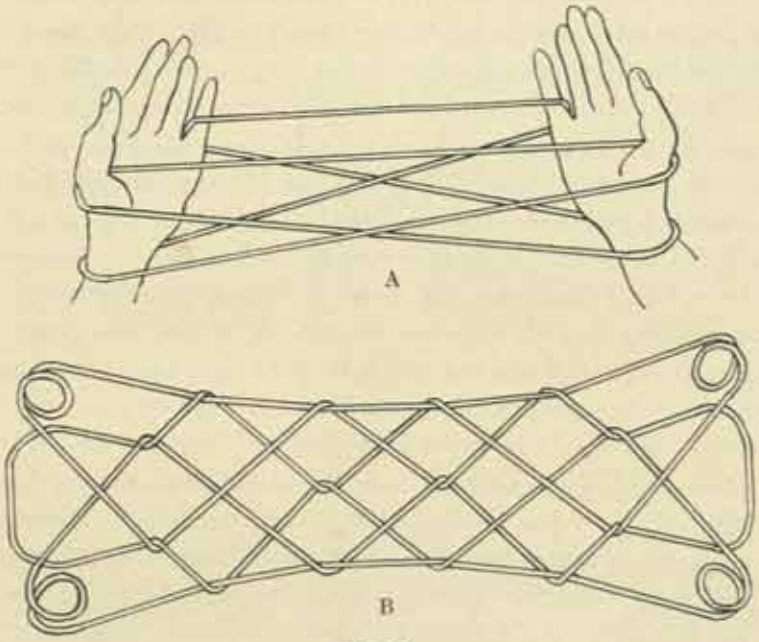


FIG. 21.

the right hand about eight inches, the strings pulled out to pass outside the thumb and little fingers. Insert the whole right hand into the loop pulled out and extend. Repeat with the right dorsal loop. (*See* Fig. 21, A.) (3) Bring the hands near each other, and with the left thumb and index tips take hold of the right ulnar thumb and radial little-finger strings. Withdraw the right thumb and little finger from their loops and turn the right hand away from you, down and up again so as to give a twist to the right wrist loop, and insert the thumb and little finger into the loops they have just dropped. Repeat with the left hand. (4) Take the right ulnar little-finger string and pass it round the back of the right hand and radial to the base of the thumb. Take the right radial thumb string and pass it round the back of the right hand and ulnar to the base of the little finger. Repeat with the left hand.

(5) Twist the right radial little-finger string once clockwise round the right little finger, and the right ulnar thumb string once counter-clockwise round the right thumb. Repeat with the left hand. (6) Lift the dorsal wrist strings over the hands and place them on the thumb and little fingers in Position I. (7) Close the fingers and thumbs together and turn the tips inwards, over the palmar strings, and downwards through the triangles, based on the hands and meeting in the centre, and extend, fingers pointing away, palms facing outwards, thumbs down and fingers spread out. With help from an onlooker the figure can be removed from the fingers and laid on the ground. (*See* Fig. 21, B.) Time, 35 seconds.

XXII.—The Fetish Priest or Ju-Ju Man. (*Kómfo anótsche.*)

An eight-foot string is required. (1) Put one end of the loop round the back of the neck and the other over the left big toe, strings parallel. (The finger of another person, who need not be skilful in string games, may be used instead of the toe, or a convenient hook.) (2) With the right hand wind the string once round the toe and pull out the toe loop about 18 ins. towards you. (3) Pass the left fingers from below into these four strings, about half-way between the right hand and the left toe, so that the thumb is to the left of the left neck string, the index is between the left neck and the left 18-in. loop strings, the middle finger is between the left and right 18-in. loop strings, the ring finger is between the right 18-in. loop and right neck strings, and the little finger is to the right of the right neck string. (4) Clip the left fingers together and pass the loop held in the right hand away from you, so that its two strings go outside the upturned left fingers, and drop the loop on to the four toe strings about half-way between the left hand and the toe. (5) Pass the right index, from right to left, between the left hand and the loose loop of movement (4), under the right, over the two middle and under the left toe strings. This is the same as Fig. 20, A, except that the palmar string shown there is pulled out and forms the neck loop. Catch with the right thumb the two right index palmar strings. Withdraw the left hand. (6) With the left thumb and index take hold of the right index distal palmar string and keep hold of the right index proximal palmar string with the right thumb. Separate the hands about ten inches and pull out these two loops. (7) Insert from below the whole hands into these two loops, so that single strings rest on the backs of the wrists. (8) Move the hands towards the toe, and pick up the two toe loops with the right thumb and index. (9) With the left hand back upwards, clip these two loops, hanging from the right thumb and index, between the left index and middle fingers, and with the right hand fold down one of the upstanding loops to you, and clip it with the left thumb to the side of the left index, and fold down the other upstanding loop from you and clip it between the middle and ring fingers. (10) Pull up the *proximal* left index and middle-finger dorsal loops about one inch, and pass the right index and middle fingers distally into these two short loops, picking them up on their backs, separate the hands, being very

careful not to pull off the left index- and middle-finger *distal* dorsal loops. Movements (8) to (10) may be described as:—Twi toe loops, picking up the proximal loops. (11) Grasp the four strings of each hand with the closed fingers, and shake off the dorsal wrist loops. (12) Pass the thumbs distally to the radial index string and pick up on their back tips the two strings that come between the index and middle fingers. (13) Turn the middle fingers away from you and down and under the middle-finger string, which they pick up on their back tips. (14) The thumbs press down the radial index string. Extend, the palms facing away from you, and arrange the central figure with your mouth. (Fig. 22.) It is best to work with loose strings from movement (11) onwards. The legs, running from the central knot to the neck strings, may be shorter or longer than shown in the figure. Time, 22 seconds.

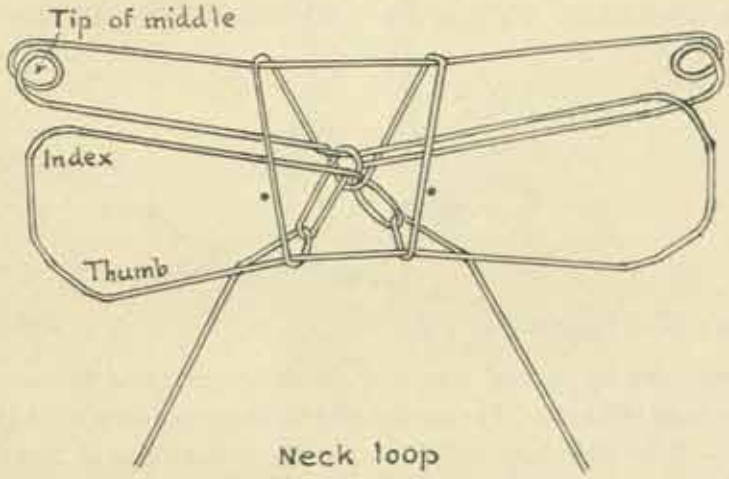


Fig. 22.

XXXIII.—The Breastplate the Fetish Man Wears. (*Kómfo anótshe kon mu síka tétere.*)

This is the same figure as the Yoruba "Camp bed" (Haddon, p. 34), but the fingering is a little different. The name given here seems more suitable. Most natives would be shy or secretive about anything to do with Ju-ju. Possibly "Camp bed" was thought "good enough for white folk."

A six-foot string is long enough. (1) Make a double ring of the string and put it over the head, so it rests on the neck, and place one loop over each upturned thumb. (2) Transfer the right thumb loop to the left little finger. (3) Stretch tight and turn the left hand so that the fingers point down. (4) Pass the right hand between the strings and the left wrist, and take off the left little-finger loop and return. (5) Turn the left hand so that the fingers point up, and insert the left little finger from below into the loop held in the right hand. (6) Pass the right thumb and

index from above through the left little finger loop, and take the distal thumb string and withdraw it through the little finger loop. (7) Release the loop on the left little finger and put the loop held in the right hand on the left little finger. Extend. (Fig. 23.) Time, 8 seconds.

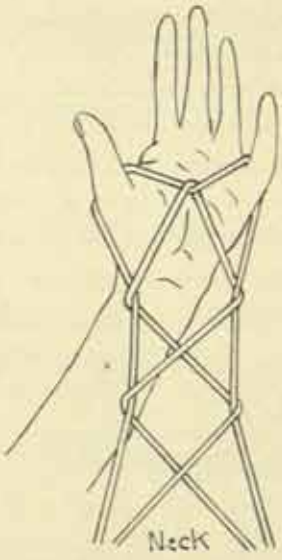
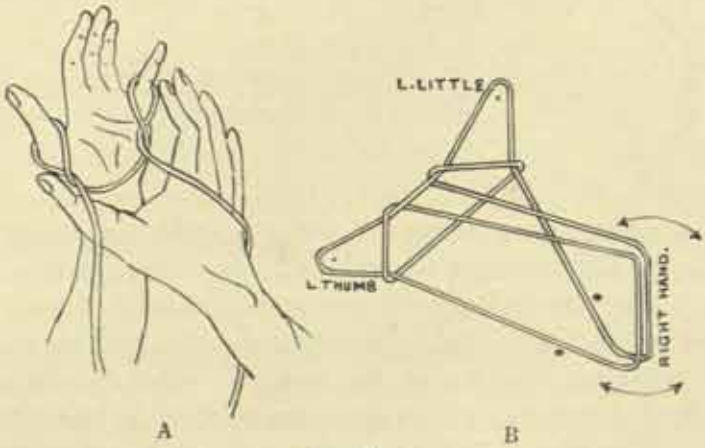


FIG. 23.

XXIV.—THE SKIN BELLOWS. (*Afâ.*)

A short string about four feet long should be used, or a long one doubled. (1) Position I, on left hand. The knot should be about half-way down the hanging loop. (2) With the right hand pull down the left palmar string as far as it will go. (3) Again, with the right hand pull down the left palmar string, through the long pendent loop, as far as it will go. (4) Pass the right hand through the long pendent loop, spread out the thumb and fingers under the long loop strings, pass the tip of



A B

FIG 24

the right thumb from above into the left thumb loop on the radial side, and the tip of the right index from above into the left little-finger loop on its ulnar side, pull out these two loops, through the long pendent loop, grasp them in the right hand and extend. The knot should be in the right hand. Time, 5 seconds. Fig. 24, A, shows the beginning of movement (4), where the thumb and index are shown touching the strings they are going to get hold of; Fig. 24, B, shows the completed figure. Then, by opening and closing the left thumb and little finger, and rocking the right hand to and fro, keeping the strings taut, the left palmar triangle opens and closes and gives an idea of a primitive skin bellows working.

XXV.—The Skin Bellows. (2nd form.)

A four-foot string is used. (1) Position I, on left hand only. Knot at the end of the long loop. (2) Pass the right index from above behind the left palmar

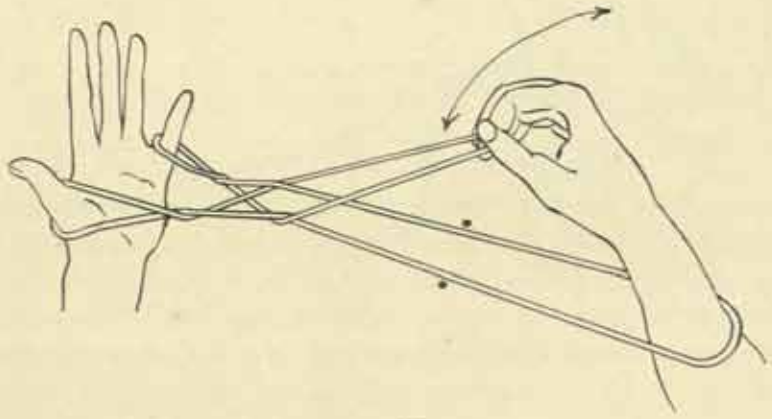


Fig. 25.

string, pull it out a few inches, and turn the right index away from you and up, and slip the twisted loop over the left middle finger. (3) With the right index draw out the left middle-finger palmar cross as far as possible. Leave these two loops hanging. (4) Pass the right index through the left middle-finger loop and pull out the palmar string. Pass the whole right hand from below into this pulled-out loop and let this loop slip well down the right forearm. (5) Turn the left-hand palm downwards, and with the right index pull the dorsal string off the left middle finger, and extend. (6) Spread open the left hand widely, and keep it so. Then, by rocking the right arm about the elbow, the bellows will work. (Fig. 25.) Time, 8 seconds.

XXVI.—A Brass Pan. (*Mfámfa*, a small brass pan used in weighing gold.)

A four-foot string is used, or a long one doubled. (1) Position I, on the left hand only. The knot should be at the end of the long pendent loop. (2) The right index pulls down the left palmar string until the right wrist rests in the original

pendent loop. (3) Pass the left thumb proximally to the little-finger loop, hook back the ulnar little-finger string proximally to the radial little-finger string, and return. (4) With one motion release the left little finger, and without drawing the dropped string tight, pick up proximally, with the dorsal tip of the little finger, the ulnar thumb string and return. (5) Repeat (3), the distal thumb loop slipping off as the thumb commences to move towards the left little finger. (6) Repeat (4). (7) Repeat (5). (8) Repeat (4). (9) Repeat (5). (10) Repeat (4). (11) Repeat (5). Note the thumb picks up the little-finger string, and the little finger a thumb string, four times each. (12) Pass the left index from behind into the thumb loops, picking up on its back tip the two ulnar thumb strings, and extend, releasing the left little finger and the right index. (Fig. 26.) Time, 10 seconds.

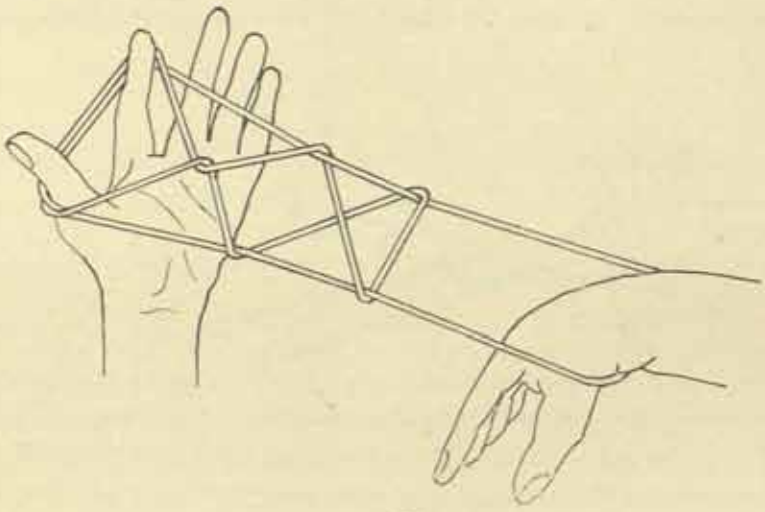


FIG. 26.

XXVII.—Weaving Cloth. (*Ajyá se me nwine ntóma*, Father tells me to weave cloth.)

A six- or eight-foot string will do. (1) Place the loop over the right and left big toes. (2) Twist the far string once round the left toe and the near string once round the right toe. (3) With the right and left hands draw the short toe loops out to the centre of the figure, pass the left loop through the right one from below, exchanging the loops in the hands. (4) Pass both hands downwards through the central space so formed, and with the right hand take hold of the far string running from toe to toe, and with the left hand the near long string. Pull these strings up, then separate the hands, the right from you and the left to you. This forms Fig. 27. By moving the toes away from each other, the feet rocking on the heels, and letting the hands approach each other, and then by pulling the hands apart, and letting the toes come towards each other, the effect of weaving is produced.

The action is similar to that of "sawing wood" in "Cats' cradles." As the hands approach, slowly, say "*Ajya se me nwine ntoma,*" and as the hands are separated, quickly, say "*Krowiso.*" The last word has no meaning, but is intended to represent the sound of a loom working. Time, 15 seconds.

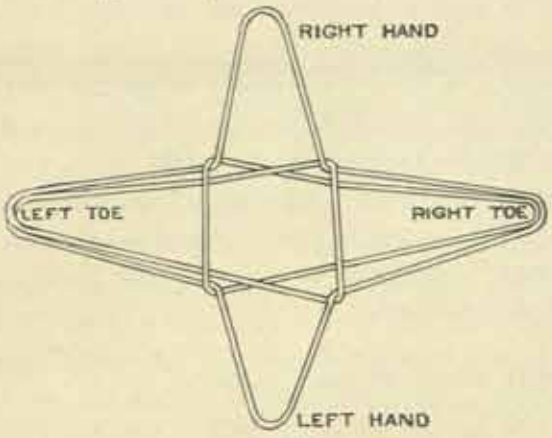
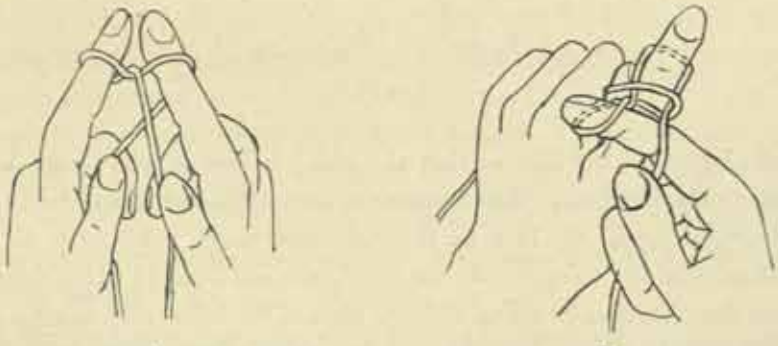


FIG. 27.

XXVIII.—The Mannikin. (*Ówora dáda, dáda* means "master".)

Ówora really means a person of long skill and experience, but is now used in a derogatory sense, and is applied to people of both sexes skilled in crime or vice. So I had considerable difficulty in getting the meaning from my modest informant. The figure is supposed to have been invented by a skilled performer of string games, whose hands were so small that, to copy him, you must make the figure on the tips of your fingers.



A B

FIG. 28.

(1) Pick up about two inches of the string with all four fingers of both hands in the loop and pointing towards you. Tips of the thumbs hold the string to the first joints of the indices. (2) Straighten the left index away from you, its tip passing over the cross string, and hold down, with the tip of the thumb, the radial index string to the left middle finger. (3) With the back of the right index pick up the

left index radial string on its tip, and extend the right index away from you, and hold down tightly, with the tip of the right thumb, the right index radial string to the right middle finger. (*See* Fig. 28, A.) Both indices are now pointing straight away from you, their tips touching. (4) Bend the left index down and towards you, and pick up on its back the cross string, the ulnar right index string, and return. There are now two short strings dorsal to the left index; the last one to be picked up should be proximal, and three strings should be crossing one another close to the radial side of the left index. (5) Turn the right index down and towards you, and then to the left, so that the two indices are at right angles, back to back, and the second joints touching and pressed together. This completes Fig. 28, B. To make the figure a good shape, and to prevent it having too small a waist, the string held down by the right thumb must have more tension than that held by the left thumb. Time, less than 2 seconds.

XXIX.—"SWAT THAT FLY." (No local name.)

This is a variation of "The Fly" (Ball, p. 48).

A piece of string about three feet long is tied at each end to the little fingers. A loop of string six feet long will do as well, either hooked over the little fingers, or tied to them by slip knots, but this is not the local method. (1) Pass the right

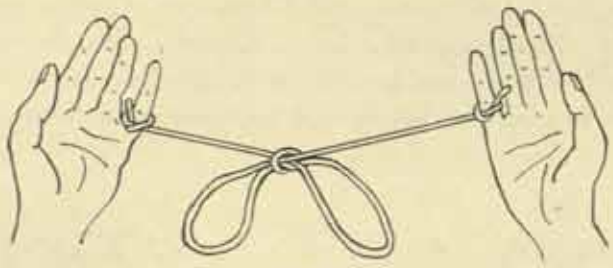


FIG. 29.

hand clockwise round the left, so that the string is first palmar to the left hand, then radial to the left index, then crosses the back of the hand and becomes ulnar to the left little finger. (2) Pick up the right little-finger string with the back of the right thumb, so the string crosses the right palm and is radial to the right thumb. (3) Pick up the right palmar string with the back of the left middle finger. (4) Pick up the left palmar string, through the left middle-finger loop, with the back of the right middle finger. Note this movement must not precede (3). (5) Release the right thumb, and shake off the loop on the back of the left hand, over the tips of the left fingers. (6) Draw the knot in the centre tight, and release the middle fingers. (7) Extend sharply and the figure disappears. (Fig. 29.) Time, after tying the string to the fingers, 5 seconds. Shown by S. S. Odonko, Schoolmaster, of Bana Hill, near Kpong. Western Krobo tribe.

XXX.—To make a figure of eight in the middle of a loop.

A three-foot string is used, which should not be too thin or pliable. (1) Place the loop over the indices pointed upwards, the palms of the hands also turned upwards. (2) Wind the left index ulnar string once round the left index, counter-clockwise. This should be done by help of the left thumb, and without using the right hand. (3) With the right index pick up from below the left index short dorsal string. There are now two loops on each index, which should be kept well separated. (4) Using the right thumb, shift the right index distal loop below the proximal loop, and roll up the former proximal loop to the tip of the finger. (5) Pass the tip of the left thumb distally into the left index distal loop and raise that loop just off the tip of the left index. Pass the tip of the left index proximally into the left thumb loop and remove the loop from the left thumb. The effect of this movement is to turn the left index distal loop once over towards you. (6) Carry out movement (4) with the two loops on the left index. (7) Pass the middle fingers by the near side of the proximal index loops and up into the distal loops from below, and remove these loops from the indices. (8) Let the loops on the indices drop off and hang down

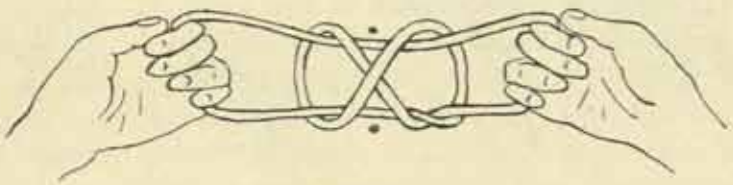


Fig. 30.

from the centre of the figure. Do not pull tight. (9) Insert the unoccupied fingers from below into the middle-finger loops to widen the figure, and extend gently, until the figure of eight shows in the centre of the figure. (*See* Fig. 30.) Time, 12 seconds. Shown by R. N. Asari, School teacher, of Odumase, Volta River District, Western Krobo tribe.

XXXI.—An Ornamental Knot, for belts, etc., made in rope, coloured cord, leather or ribbon.

(1) Hold about a foot from each end of the rope with each hand, the ends hanging down away from you, the left end passing over the right (Fig. 31, A). (2) Bend the left end down and under the right rope to the left, making a loop held in the left hand (Fig. 31, B). (3) Pass the right end down towards you and under the left loop (Fig. 31, C). (4) Turn the right end up and to the left, over the left loop, keeping this "turn" nearer to you than the first turn (Fig. 31, D). (5) Holding the incompleted knot in the left hand, with the right pick up the original left end of the rope and pass

it over the second, or nearer, turn and under the first, or farther, turn of the right rope end (Fig. 31, E). (6) Adjust the free ends to equal and suitable length, and pull tight, working the knot into form and position (Fig. 31, F). Shown by Boadi.

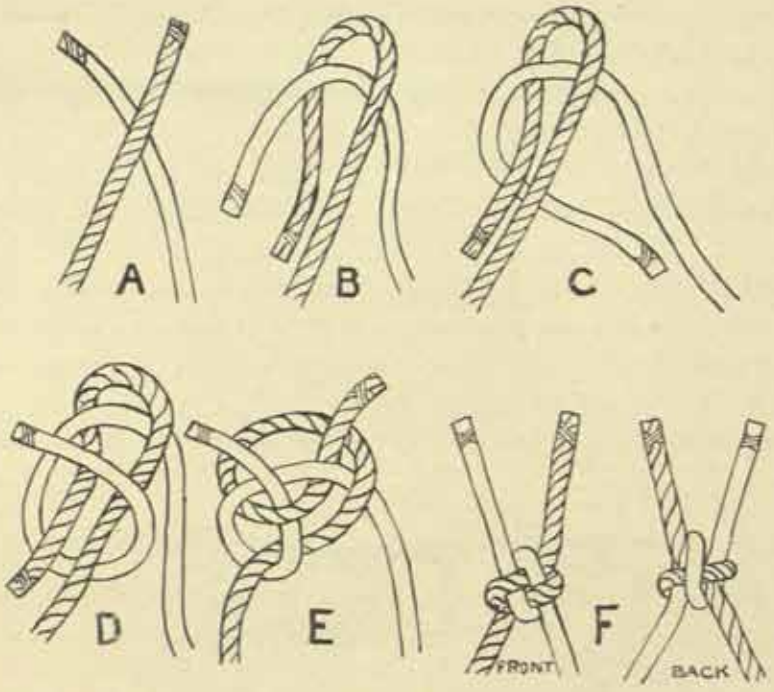


FIG. 31.

NOTE.

"Position I."—This name may be applied to the position in which the string is placed on the hands when beginning the great majority of the figures.

Place the string over the thumbs and little fingers of both hands so that on each hand the string passes round the back of the little finger, then between the ring and little fingers and across the palm; then between the index and thumb and round the back of the thumb to the radial side of the hand. (*See* pp. 284, 286, 294, 296 and 297 twice.) (Haddon, p. 3.)

(*Percy Sladen Trust Expedition*, 1924–25.)

HORNS IN MADEIRAN SUPERSTITION.

[With Plates XXV and XXVI.]

By James Hornell, F.R.A.I., F.L.S.

During a recent visit to Madeira I took whatever opportunities offered to study the local superstitions, particularly those connected with the evil-eye. A number of the common European beliefs of this nature are prevalent, but in the present note I propose to limit myself to those in which the horns of various animals, or substitutes therefor, are made use of to avert evil.

For some time after arriving in Madeira I found little overt evidence of such customs. The contrast to what one sees, for example, in Sicily, where horns or their counterparts are freely and conspicuously displayed, is marked. I was told specifically that horns are not so used in Madeira except to protect pigs against "bad air" (*ar mau*), that to do so, other than for this one exception, is considered actually indecent, even the word *corno* (horn) being banned from ordinary conversation, *chifre* being usually substituted when the object has to be particularized.

Persistent enquiry showed the custom to be much more common than was known to my informants, though these include the Madeirans most conversant with island customs. I found horns used to counteract evil influences in several different ways, the following being the most important:—

(*a*) In fishing-boats as amulets against "envy" and the evil-eye (Pls. XXV, XXVI).

(*b*) On pigsties, sometimes reinforced by the addition of other amulets as a protection against "bad air" and the evil-eye.

(*c*) In fields to prevent the crops being "overlooked" (Pl. XXVI, Fig. 3).

(*d*) In houses, against "envy" and the "evil-eye."

(*e*) The sign of the horns against a suspected passer-by.

(*f*) For the purpose of insulting others.

A.—Amulets in Fishing-boats.

This custom is the one most widely spread and is, indeed, practically universal among fishermen in Madeira. Great secrecy is observed, however; outside the ranks of the fisherfolk no one else knew of it till my enquiry brought the fact to light. Fishermen almost universally deny the existence of such a custom when questioned directly, but when once this peculiar reticence is broken down and the men learn

that the questioner knows their secret, they often become communicative and show the horns belonging to their boats. At Machico, for example, it was not till I offered monetary inducement that their tongues were loosened and horns produced. These are usually kept in the locker under the aft decking or *leito* in the larger boats, and under the forward *leito* in those with open sterns. When the boats are drawn up on the beach the horns belonging to them are sometimes taken to the owner's house or net store for safety. Generally a definite preference is expressed for the horns of a black goat as being the most efficacious against evil influences; in some villages, *e.g.*, Ponta do Sol, the men said they considered those of a black sheep the best. I have also been told that the branched antlers of a deer, sometimes obtainable from returned travellers to other countries, are better than either. The horns of oxen are prized the least; these are, however, by no means uncommon, and, though less



FIG. 1.—OX-HORNS USED TO PROTECT FISHING LINES FROM THE EVIL-EYE, FUNCHAL, MADEIRA.

powerful, are yet considered valuable for the purpose required. From one boat at Machico I obtained a compound amulet, comprising a pair of bullock-horns, a single goat-horn, and a horseshoe—the lot tied together with cord and secreted under the stern *leito*. At Ponta do Sol, Machico, and other places the horns are generally kept on board the boats when hauled ashore; at Funchal they are usually taken to the owners' stores and kept with the lines because of the danger of theft.

The majority of fishermen are content with horns in the rough; a small number, probably the more superstitious among them, exercise considerable ingenuity in decorating and ornamenting them. At Lugar de Baixo one boat owner has a pair of goat-horns with a small bell hung from each tip; another at Cama de Lobos, in addition to bells similarly disposed, has inserted the horns upon a wooden representation

of a goat's head, painted and carved in fairly realistic manner (Pl. XXV, Fig. 2). A Caniçal man varies this by mounting a pair of goat-horns at the summit of a stout wooden rod, affixing a pair of bullock-horns a little way beneath, the latter being painted with broad encircling rings of green alternating with equi-wide uncoloured bands. (Pl. XXVI, Fig. 2). Other horns at Machico are painted red and green, the national colours. These mounted and decorated horns appear to be kept by the owners in their homes except when some special emergency arises requiring their presence aboard the fishing-boat. In this way they serve a double purpose, protecting the house where they are kept, and counteracting occasional malign influence on the fishing-ground when it arises. In Madeira, line-fishing is the all-important method in use, and it is the tunny liners who in particular value the protection of horns, for their fishery is by far the most doubtful in its results, the tunnies being seasonal fishes, uncertain and capricious in their migrations. In Funchal, I have seen goat-horns laid upon or among lines coiled up in tubs in fishermen's stores, and I understand that they are also sometimes laid upon nets spread out to dry upon the beach, the object in all cases being to render futile the malevolence or envy of others who are jealous of the owner's success. Magdalena men say that when some fishermen secure good catches and others poor ones the latter result is attributed to *inveja*, and horns are taken out to sea on the next occasion with the fishing-gear, or a *feiticeira* is employed to "bless" the nets. Similar information was given to me by people at Funchal and Lugar de Baixo.

These horns are said to be occasionally mounted on the prow, but this appears to be very rarely done; the only occasion about which there is general agreement is that the crews of fishing-boats do this when returning home on the popular festival of the first of May. (It is notable that this is not done on a religious festival, but only on one that is essentially a pagan survival.) I have also been informed by reliable persons that horns may sometimes be fixed in a conspicuous place when the first launching takes place to prevent *mau olhado* (the evil-eye); and for the same reason when a boat obtains a good freight or when she is a fast sailer.

Horns are also shown in the most conspicuous part of the boat when rival owners and crews pass one another in opposite directions, or when one boat outsails another, the purpose being in these cases to make *figas*, which in Portuguese signifies to tease. In small boats the horns on these occasions are tied either to the fore or the aft *capello* (the upstanding projection from the prow or the stern), whereas large boats, such as the *barcos de carreira* that ply between Madeira and Porto Santo, exhibit them on the quarter. One of the latter, the *Neptuno*, has a most elaborate one, a hairy face, surmounted by horns, and with two movable arms worked by strings, marionette fashion, the whole mounted on the end of a short plank that can be inserted behind a cleat inside the bulwark on the quarter (Pl. XXVI, Fig. 1).

Besides the protection sought by carrying horns in their boats, the fishermen and boat people in Madeira make use of sacred emblems to secure safety and success under the protection of the saints. These religious amulets, termed *bentos* (usually

incorrectly given as *bentas*), consist either of images of some saint printed on cloth or of a cross of cedarwood. These are usually issued by the Roman Catholic Church after being blessed and sprinkled with holy water. The boat owner has one or other of these, or even both, nailed in some place within the boat, and often concealed and protected by means of a piece of wood nailed over them. As with the employment of horns, secrecy is observed in regard to the hiding-place; this is usually on the underside of the forward deck. Though the men may freely admit they have these things in their boats, they refuse to divulge the hiding-place on some excuse or other. The true *bento*, an image of a saint on cloth or sometimes in metal, is also worn as a scapulary hung round the neck, and even here some secrecy is observed, the image being usually enclosed in a small leather or cloth bag.

At the village of Paûl do Mar, towards the west end of the island, instead of picture *bentos*, the men generally use beads from the rosary of São Amaro, the local patron saint. A rosary is held in the hands of the figure of this saint exhibited in the local church, and it is from this rosary, according to Sr. Carlos Vaz, of Santa Cruz, that the fishermen obtain, by illicit means, the beads they require. Every now and again the priest has to add new beads to make good the losses thus sustained.[1]

Additional protection in some boats (a minority) is sought by daubing a cross on the aft side of the coaming at the hinder end of the fore *leito*.

It would appear from the foregoing that the fisherfolk of Madeira propitiate both the powers of good and evil, for this use of horns appears to be a relic of the mediæval belief in a personal devil.[2]

Connected with the above is the use of *alecrim* or rosemary (*Rosmarinus officinalis*). The village folk have a custom of burning rosemary in their boats as well as in their homes, to counteract any feared effect of the evil-eye. Certain people called *curandeiros* (male) and *curandeiras* (female), are usually employed to perform this purificatory protective service.

B.—Horns and other Amulets on Pigsties.

Pigs are valued possessions of the peasantry of Madeira. Unfortunately, owing to lack of exercise, rich food, and the confined life led, they are more liable to sickness and sudden death than other domestic animals, hence their owners resort to various occult devices to avert such consequences, which, in ignorance of the true cause, they attribute to *ar mau* or "bad air," caused by some evil influence allied to, if not identical with, the evil-eye. By far the most common is to place a pair of horns in the thatch of the pigsty, or a small one upraised on the end of a stake alongside the sty. Ox-horns are generally used, being those most easily obtainable; but, as with boats,

[1] Kindly communicated by Sr. H. dos Passos-Freitas.

[2] For a detailed account of the use of horns as symbols of honour and distinction, and of the modern perversion of this idea, *see* Elworthy, F. T., *Horns of Honour*, London, 1900

the horns of goats are considered more efficacious. The power of this amulet is sometimes reinforced by the addition of a black bottle, or a bunch of rosemary. It is also common to see a black bottle by itself in the thatch or suspended by a cord. Usually the bottle is empty and stuck, neck down, in the thatch; in others it is filled with holy water and corked, and hung neck upwards.

Other articles used to avert the effects of *ar mau* comprise lumps of coal, sprigs of rosemary, small vials of laurel oil (*Laurus canariensis*), and articles made of steel —in particular, a file or a horseshoe—hung up in front of or on the sty. One instance was related to me where a pigsty was protected by five different amulets—a pair of horns, a bottle of holy water, a bottle of laurel oil, a horseshoe, and a bunch of rosemary.

The peasantry have most indefinite ideas on the subject of *ar mau*; all that it is possible for us to say is that it is a maleficent influence that makes itself felt principally by night and has the property of causing sickness and death to persons and animals exposed to it. The peasants say that if dogs are heard howling by night without apparent cause, it is because there passes a blast or current of this "bad air." Should the bottle that was placed on a pigsty be broken, or the file gone, this is accounted evidence that the *ar mau* has passed and has expended its harmful force upon the amulet, whereby the pig has been saved.

Senhor A. Coelho informs me that it is polite for anyone, when looking at another's pig or some favourite cattle, to use the exclamation "*Deus favoreça*," meaning "May God protect," to show that he has no "envy," and this even if an amulet be in sight.

C.—Horns Protecting Crops.

The custom of protecting crops against being overlooked and harmed by the evil-eye is rare in Madeira. I was told, indeed, by informants well qualified to know, that the practice is unknown in the island. This, however, is not the case, for I have seen and photographed an instance at Caniço and three others at Cama de Lobos. In the former the frontal bone of an ox, bearing its horns, was nailed to the top of a pole set upright in a sweet-potato patch recently planted (Pl. XXVI, Fig. 3). In the latter the crop protected was again the sweet potato, the amulets being respectively the horns of an ox and single ones of a goat and an ox. Again, I have been told by a countryman of Ponta do Sol that horns are sometimes placed for the same purpose on poles in the middle of pumpkin patches when the fruits are ripening.

D.—Horns in Houses.

For the reason to be mentioned later horns are never placed by their owners on houses or over doors in Madeira, as is a not uncommon custom in Sicily and elsewhere. But this objection does not appear to apply to horns exhibited within doors, and the more superstitious of the people take advantage of this to protect their belongings from *inveja* and the evil-eye by keeping a pair somewhere within their houses or

shops. I know of several shops where horns, usually of oxen, are displayed on the walls; in others they are merely kept in any convenient place, such as under the counter. As already noted, fishermen and boat owners frequently keep horns in their houses, taking them to their boats only when some special need requires.

One prominent shopkeeper in Funchal has three pairs of ox-horns in sight in the bar-café, where he serves himself. This man, in common with others whom I interrogated, denied strenuously at first that he displayed them from any superstitious motive, alleging that they were there merely to induce conversation and afford an opportunity for the perpetration of coarse jokes. A little later he became confidential and admitted that he had placed them there to protect from *inveja*. He added that he had them also on his pigsties and in his wine-store, and that he had proved their efficacy once when the store was visited by a person suspected of *inveja*. (Usually this term "envy" is used instead of *mau olhado* or evil-eye, but they may in practice be considered synonymous.) The horns were over the inner entrance to the wine-cellar, and he noticed that the visitor started when he saw the horns and hesitated momentarily—evidently taken aback at the presence of the horns which deprived him of any power of harm. "And," said my informant, "he never returned."

Horseshoes, which simulate the form of horns when placed concave side upwards, are also used indoors, usually in some inconspicuous place, not readily visible—the converse of the custom in England and Italy, where the horseshoe is placed in the most conspicuous position possible. To secure greatest potency the shoes should be found on the highway.

The only instance noticed of horns being placed on the outside of a building is one where a fine pair of ox-horns, painted blue, are attached to the top of the chimney of an aguardiente distillery near Cama de Lobos.

E.—THE SIGN OF THE HORNS.

This well-known sign is made by extending the index and little fingers, closing the others. In Madeira, if a person pass who is suspected of being psychologically dangerous, dominated by envy, or possessing the evil-eye, the evil is warded off if the horn sign be made quietly and without remark.

Occasionally, but so far as I could notice, quite rarely (I saw one instance only), a small charm, in the form of a hand making this sign, is hung from the watch-chain. Much more common is that of the hand in the *figa* position—the thumb thrust between the index and middle finger of the closed hand. This is often made as a small ornament and given to a child by its godfather, or it may be hung from the watch-chain.[1] *Fazer figa*, "to make the *figa* sign," is equivalent of "to tease" or "to ridicule."

[1] This aspect of the subject—the use of "charms" carried on the person—is dealt with at length by Dr. W. L. Hildburgh in "Notes on some Contemporary Portuguese Amulets" (*Folk-lore*, vol. xix, pp. 213-224).

F.—Horns Employed as Insults.

The employment of horns as the sign of a man cursed with an unfaithful wife is widely spread in Europe, but nowhere does it attain the importance it has in Portugal and Madeira. There the placing of horns upon the door or house of a married man is considered a most atrocious insult (*atrocissima injuria*). In 1751 King Joseph of Portugal issued an edict against this practice, as it resulted in frequent breaches of the peace between neighbours. The preamble sets forth that it had become so alarmingly prevalent that energetic steps must be taken to suppress it in the interest of law and order. All officials were ordered to take stringent measures to stamp out the evil.

The practice still survives in Madeira. I have seen a door daubed with a rude drawing of a man's head carrying horns, and it is the subject of innumerable vulgar jokes. This accounts partly for the general reluctance there is to admit the possession of horns kept as amulets against the evil-eye. Conversely the same idea is ingeniously utilized by some to conceal the actual superstitious motive for possessing or exhibiting horns either aboard ship or in houses. An example of this ingenuity was seen at Machico in a boat-builder's shed. Within this, at such a distance and position as is most conspicuous on entering when the doors are flung open, is an ox-skull painted red and hung with false hair, to represent a fearsome horned human face. On a board below is the lettering

S. MEUS.

The lower classes of Portuguese when reading generally repeat the words aloud. Now "S" is the usual contraction for São or Saint, but São also signifies "they are," so when a visitor is ushered into the store and sees the head and its legend, he repeats aloud the words "São Meus" (Saint Meus) as he reads, wondering what saint this can possibly be. But his auditors shriek with laughter, for to their ears the stranger is saying "They are mine" (*i.e.*, the horns). Similarly we have the case already related of the shopkeeper who put up horns ostensibly "to tease his customers," but in reality to secure himself against the evil-eye.

The number 11, from its similarity in form to a pair of horns, is sometimes held to have the same unfavourable influence on marital peace. In Madeira it used to be considered "not pleasant" for a married couple to live in a house bearing this number. So intimate is the association of horns with this idea of infidelity that deadly insult can be adequately conveyed by merely using the epithet "corno" to a married man. It has, in practice, come to be considered positively indecent to use the word even in the most innocent fashion in conversation. This curious prudery, so peculiarly characteristic of the Portuguese, is carried to such an extreme that the minister of the Scots Church in Madeira once lost an entire Portuguese family from his congregation through the "disgust" the parents felt because, in giving a lecture, he happened to relate an anecdote about a cow in which reference

was made to its horns—quite innocently he used "cornos," the literal Portuguese equivalent of horns, whereas, to be polite, he should have used *chifres* or *pontas* (antlers or points). This prudery extends even into the translation of the Bible, where the shameful word "horns" in the phrase "he laid hold of the horns of the altar" is rendered unmeaningly by the words *a força* = "the force," merely because horn in quite another sense had been so rendered in a preceding passage.

CONCLUSION.

It appears probable that the employment in Madeira of horns as amulets is traceable in part to the former existence of a devil cult. The fact of goats' horns being those most highly valued is particularly significant, for in Madeiran witchcraft legend the reunions of witches (*feiticeiras*), which take place in certain well-known places, particularly the Campo Grande in the Paül da Serra, are presided over by the devil (*o demonio*), who takes normally the form of a horned goat. That the amulet should be of a black colour—a black bottle, a piece of coal, or a black-haired goat or sheep—is also of importance, seeing that the devil is usually painted black. But to go fully into this subject would require a review of the whole of the literature on demonology in Europe, and that cannot be done in the present paper.

Much of the material for this note was obtained through the kindly help of my friends Senhor Adolfo Cesar de Noronha and Senhor Jose Maria Teixeira; their good offices were a magic wand in my investigations. My very grateful thanks are proffered to them. I trust Madeira will recognize before long, in an appropriate manner, the great scientific attainments of Senhor de Noronha.

EXPLANATION OF PLATES XXV AND XXVI.

PLATE XXV.

Fig. 1. Aft end of a fishing-boat of Machico showing a pair of goat-horns tied to the aft *capello*. On the deck is a wicker basket used for the storage of live bait.

Fig. 2. Horns and bells belonging to a fishing-boat of Cama de Lobos.

PLATE XXVI.

Fig. 1. A horned marionette figure on the quarter of the *Neptuno*, a *barco de carreira* of Machico.

Fig. 2. A horn amulet belonging to a fishing-boat of Caniçal: a pair of goat-horns above, ox-horns below.

Fig. 3. Ox skull and horns nailed on top of a stick in a sweet-potato patch, Caniço.
(*All photographs by J. Hornell.*)

Text-figure 1. Ox-horns used to protect fishing-lines against the evil-eye, Funchal. (In the foreground is an *espada preto*, a deep-sea fish caught in abundance on lines around Madeira.)

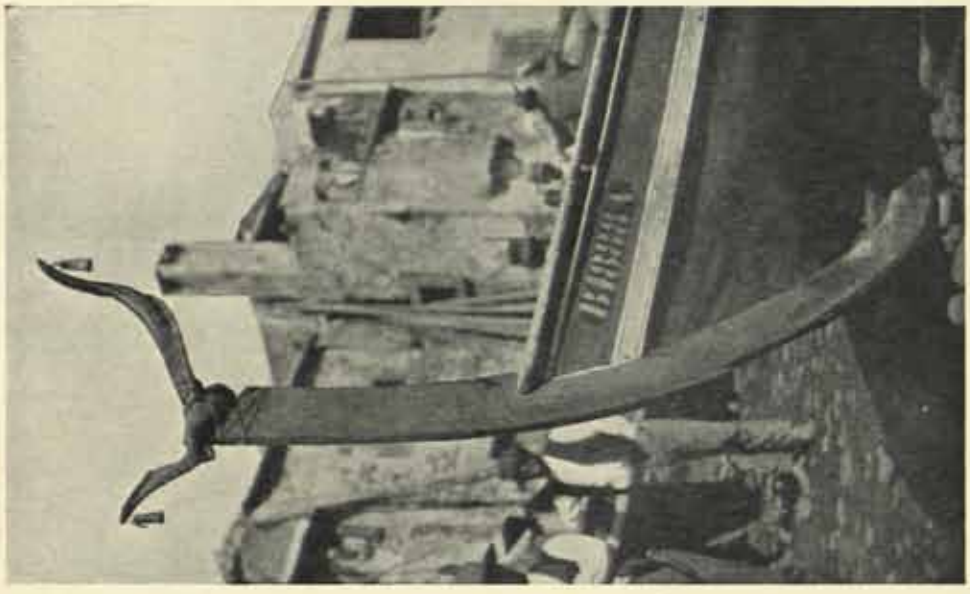


FIG. 2.—A CAMA DE LOBOS BOAT WITH HORNS AND BELLS ON THE FORE CAPELLO.

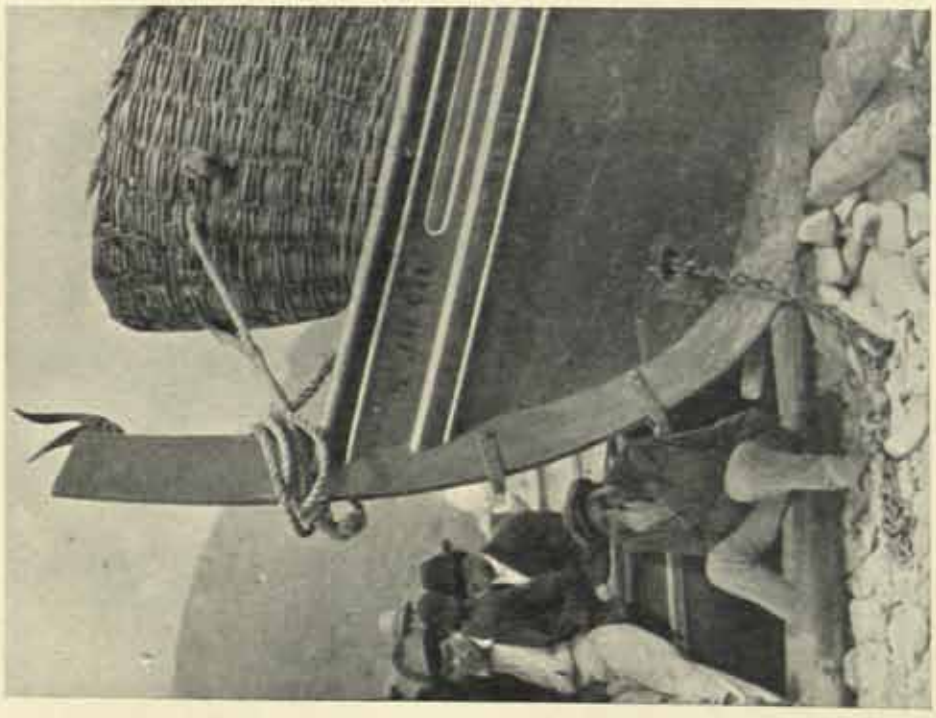


FIG. 1.—AFT END OF A FISHING-BOAT OF MACHICO, SHOWING A PAIR OF GOAT-HORNS ON THE CAPELLO.

HORNS IN MADEIRAN SUPERSTITION.



FIG. 1.—A HORNED MARIONETTE FIGURE ON THE QUARTER OF THE "NEPTUNO," A BARCO DE CARREIRA OF MACHICO.



FIG. 2.—A COMPOUND HORN AMULET, CANIÇAL, MADEIRA.



FIG. 3.—OX-HORNS IN A SWEET-POTATO PATCH, CANIO.

HORNS IN MADEIRAN SUPERSTITION.

FURTHER DISCOVERIES OF EARLY CHELLEAN FLINT IMPLEMENTS IN THE CROMER FOREST-BED OF NORFOLK.

[With Plates XXVII and XXVIII.]

By J. Reid Moir.

Following upon the discoveries of flint implements referable to the Cromer Forest-Bed accumulations of Norfolk, the Trustees of the Percy Sladen Memorial Fund very generously provided funds for the further examination of these deposits. As will be remembered, there was discovered upon the foreshore, exposed at low water at Cromer, a large series of ochreous artefacts of a remarkable character, which, while not actually found *in situ* in any deposit, was, from the whole circumstances of the case, referred by me to the lowermost horizion of the Forest-Bed (1).

It was, however, obviously necessary to endeavour to ascertain by digging if similar ochreous flints occurred in place in some deposit beneath the beach, between the foreshore and the cliffs, at the site where this discovery was made. Such excavations were attempted, but, unfortunately, the completely water-logged condition of the sand and shingle forming the beach was such as to render impossible any digging in a downward direction, and the work had to be abandoned. Thus, so far as the Cromer site is concerned, it will be realized that no ochreous specimens have, up to the present, been found actually in place in a geological deposit, but the research carried out this year at East Runton, situated about two miles westward of Cromer, has, without much question, established the fact of the occurrence of Early Chellean implements *in situ* in a bed resting upon the chalk at the base of the cliff at this spot, and has made it in the highest degree probable that the similar implements found at Cromer were derived, originally, from the same geological horizon. It is now my purpose to give a description of the position of the East Runton site, to attempt to arrive at a decision as to the geological and cultural age of the bed exposed there upon the foreshore, and to describe and illustrate certain specimens of flint implements found in this deposit, and of some others lying in close proximity to it. Further, an illustrated account will be given of some newly discovered implements from the foreshore sites at Cromer and at Sheringham.

1. The Position of the East Runton Site.

The area at East Runton which has been under examination is situated about 400 yards westward of East Runton Gap and is exposed, at low water, well beyond the seaward extension of the beach. The site is approximately opposite to Wood Hill, and the most easterly portion of the famous and immense chalk erratic, of glacial origin, that occurs in the cliff at East Runton (2).

2. The Geological and Cultural Age of the Deposit present upon the Foreshore at East Runton.

The deposit at East Runton in which Early Chellean flint implements have been found, is upwards of 1 foot to 18 inches in thickness, and while now, owing to marine action, is present in the form of isolated areas of considerable extent, existed evidently at one time as an unbroken stratum over a wide stretch of foreshore. There can be no doubt that this accumulation, which rests upon the chalk, underlies, in the cliff section, (*a*) a deposit representing the Estuarine Gravel (the middle division of the Cromer Forest-Bed series), as is clearly shown in the Memoir of the Geological Survey for this part of the country (3); (*b*) the *Leda myalis* Bed, and (*c*) the immense glacial deposits exposed in the cliff at this spot. The implementiferous bed, which is composed chiefly of a highly ferruginous and unstratified sand, contains, mostly towards its surface, a large number of flints, many of which exhibit the well-known appearance of those found in the Stone Bed beneath the Weybourne Crag, together with pieces of quartz, fragments of bone, and, very rarely, those of shells. In fact, at first sight, the deposit bears a close resemblance to the Sub-Crag Stone Bed, material from which it undoubtedly contains, but an examination of the flint implements found in it leads me to believe that the accumulation must be referred to a later period than that of the Sub-Crag Stone Bed, namely, to the earliest Cromer Forest-Bed Stage. In the course of my archæological work I have become familiar with the types of humanly-flaked flints found in the Stone Bed beneath the Norwich Crag, and I have never seen specimens from this horizon of definite Early Palæolithic forms, such as occur in the bed at East Runton. Moreover, it is clear that these early hand-axes are the dominant type of implement in the latter deposit, and are not merely a-typical forms such as are found in most implement-bearing beds.

There would appear to be little, if any, Crag present at the East Runton site. In the "Sections illustrating the Geology of Cromer Cliffs," published by the Geological Survey (4), Clement Reid certainly shows the Crag as underlying the Estuarine division of the Forest-Bed at this spot, but, in the Survey Memoir dealing with it, he says (p. 15): "It is often difficult to say whether an isolated exposure should be referred to the Crag, or to the Forest-Bed, for here they are both shelly, though the Forest-Bed is the more decidedly Estuarine."

Judging from the evidence supplied by the flints present in the bed under discussion, I regard it as highly probable that the deposit represents, in part, the Sub-Crag Stone Bed, rearranged in Early Forest-Bed times. With a view, however, to endeavour to get this matter more precisely settled, I sent a sample of the deposit to Mr. I. Double, of Liverpool Univeristy, whose work upon the detrital minerals contained in the Pliocene and Pleistocene deposits of East Anglia is well known. Mr. Double's researches have been carried out with the object of differentiating, by means of microscopical and other methods, between the various main divisions of

the above-mentioned beds, and the following is the report he has been so good as to send me upon the East Runton sample.

"*Report on the Sample of Material from East Runton received from J. Reid Moir, Esq.*

"The sample consists of a rather coarse reddish-brown sand, which contains broken flints—some of which are partly decayed. Casts of shells, and some few small shell fragments, are also present. From its general appearance and position at East Runton it would appear to be either the Weybourne Crag, or the Estuarine Series of the Cromer Forest-Bed. The material was boiled with hydrochloric acid so that the minerals present might be afterwards identified. During this some few constituents may have dissolved. The heavier minerals were then separated with bromoform, and examined. Those recognized were—garnet (?), anatase, rutile, zircon, tourmaline (blue and brownish-green), ilmenite, andalusite, staurolite, chlorite, epidote, hornblende, muscovite, sphene, kyanite.

"These occur chiefly as broken fragments, only zircon, tourmaline, and rutile showing any approach to their proper crystalline form. The writer has estimated the relative abundance of the detrital minerals in the various members of the Pliocene deposits of East Anglia, and a comparison with those that characterize the Weybourne Crag, and the Cromer Forest-Bed, is given below (the figures in the columns indicate the frequency of occurrence of the various minerals, as shown in the explanation below the table).

	The Sample.	Weybourne Crag.	Cromer Forest-Bed.
Garnet...	8	8	8
Anatase	1 (?)	—	—
Rutile	6	6	6
Zircon	8	8	8
Apatite	—	2	2
Tourmaline	8	8	8
Ilmenite	5	5	2
Andalusite	4	7	5
Staurolite	5	6	5
Chlorite	3	3	3
Epidote	3	3	3
Hornblende	7	7	8
Muscovite	4	8	8
Sphene	2	4	3
Kyanite	5	8	5

1 = exceedingly rare.
2 = rare.
3 = very scarce.
4 = scarce.
5 = frequent.
6 = very frequent.
7 = abundant.
8 = very abundant.
9 = dominant.
10 = ultra dominant.

"It is evident that in any given sample of a sediment the rarer minerals may well be absent, *e.g.* apatite and anatase. But the abundant species should not vary so much. Muscovite is not present in the sample as commonly as it usually is in the Pliocene. On the whole, however, the table shows a striking resemblance

in the heavier detrital minerals. The lighter constituents of all these consist very largely of quartz, with some felspar. Columns 2 and 3 show how closely the two formations resemble each other in mineral composition, and it appears to be impossible to differentiate them by petrological means, and so far as this examination goes the sample may have come from either, or may be an admixture of both. Those who know the field conditions that exist in the area will readily admit the latter possibility."

It will be noticed that this report, though of great value and interest, does not afford an answer to the enquiry as to the exact geological age of the East Runton deposit. As has already been mentioned, this bed contains some splinters of bone, very similar in appearance and in fossilization, to the larger specimens occurring in the Estuarine Gravel which, at some places, near the seaward extension of the beach at East Runton, rests immediately upon the accumulation under discussion. These facts lead me to regard it as highly probable that the lowermost bed is closely connected with that overlying it, and to relegate the implements in the former deposit to the beginning of Forest-Bed times.

As the researches I have carried out at East Runton have not, unfortunately, resulted in the discovery of any identifiable mammalian bones, I asked Mr. Savin, the well-known palæontologist of Cromer, if he would be so good as to supply me with an up-to-date list of such remains found at this spot. The following is the report he has very kindly sent me :—

List of Mammalia (incl. Cetacea), Birds, and Fishes found at East Runton in the Weybourne Crag and Forest-Bed.

This list contains the names of all the vertebrates that, so far as I know, have up to the present, been found at East Runton. The Forest-Bed and Weybourne Crag are mixed together, and it is impossible in some cases to say from which deposit a fossil comes, but one may take it that the cetacea and fish remains belong to the Weybourne Crag. Few fossils are found in the basement bed of large flints directly resting on the chalk. I have occasionally found splinters of bone in the former deposit, but nothing whole. The beds (above the Basement Bed) consist of a hard top crust highly impregnated with iron, which, when broken through by the action of the sea, exposes a very mixed deposit, comprising peaty clay, and gravel, and sand, the latter sometimes crowded with sea-shells. It is in this deposit that most of the following remains have been found :—

Mammalia.

Elephas meridionalis.	*Sus.*	*Cervus verticornis.*
,, *antiquus.*	*Alces latifrons.*	,, *tetraceros.*
Rhinoceros etruscus.	*Cervus elaphus.*	,, *savinii.*
Hippopotamus amphibius.	,, *etueriarum.*	*Equus fossilis.*
Bison bonasus.	,, *sedgwickii.*	,, *stenonis.*

Mammalia—*continued.*

Ursus savinii.	*Phoca* sp.	*Mimomys newtoni.*
Machærodus sp.	*Trogontherium cuvieri.*	„ *pliocaenicus.*
Hyæna crocuta.	*Castor europæus.*	„ *intermedius.*
Lutra vulgaris.	„ *plicidens.*	„ *reidi.*

(Cetacea.)

Delphinapterus leucus. *Physeter macrocephalus.*

Birds.

Bubo maximus. *Anser* sp.

Fishes.

Raia batis.	*Thynnus thynnus.*	*Gadus morrhua.*
„ *clavata.*	*Acipenser* sp.	„ *pseudæglefinus.*
Platax woodwardi.	*Mustelus canis.*	
Pollachius pollachius.	*Squalus acanthias.*	

There cannot be any doubt that the remains of land mammals mentioned in the above list correspond very closely with those found with what has been termed the pre-Chellean industry of Western Europe. Personally I regard the term "pre-Chellean" as nebulous and unsatisfactory, as it may refer to any series of flaked flints older than the Chellean. *In using the term "Early Chellean" in reference to a prehistoric stage of industry, I mean one in which definite, though roughly-made, hand-axes, clearly foreshadowing the later Chellean specimens, are the dominant type,* and it is abundantly clear that this is the case in the Cromer industry. It would appear probable that, as I have stated in my former papers dealing with the Cromer discovery (5), the Early Chellean people, during their sojourn in the wide, shallow valley, occupied by a northern-flowing extension of the present River Rhine, in which the Forest-Bed deposits were laid down, came upon various areas of Stone Bed flint, exposed by the denudation of the overlying Crag, and proceeded to utilize this first-class material for implement making.

The implementiferous bed exposed upon the foreshore at East Runton is unquestionably *in situ*, and represents the basal deposit upon the chalk that underlies the cliffs at this spot. Plate XXVII shows the deposit with a small pick in front of it, resting upon the chalk, and the photograph reproduced as Plate XXVIII, shows the cliff opposite to the foreshore where my excavations have been carried out, and exhibits one of the most remarkable glacial sections on the Norfolk coast. The base of the cliff is hidden by talus, but the immense chalk erratic, with lines of flints in place, can be clearly seen. At the left-hand side of the photograph the beds above this chalk erratic show an extraordinary amount of contortion, gravel, sand, and clay

being twisted and mixed together in great confusion, but, on the right-hand side of the photograph, the beds immediately above the chalk erratic do not exhibit disturbance. An examination of these strata appears to demonstrate that they represent the beds which rest normally upon the chalk in this area, but which have been carried along on the top of the huge mass of moved chalk, and now rest above a similar series of strata of the same age *in situ*, below them. The photograph clearly shows the basement bed lying upon the surface of the chalk erratic, and, overlying this basement bed are strata composed of (*a*) stratified sand, and (*b*) pebbly gravel which, without much doubt, are the lowermost members of the Forest-Bed in this region. Above these strata the beds are violently contorted, and it is supposed that the former owe their partial preservation to having been, in all probability, frozen hard when they were transported by the ice which laid down the Contorted Drift of Norfolk. In Fig. 1 is reproduced a diagrammatic section of the beds above the chalk, and forming the cliff at East Runton. These deposits in upward succession are :—

(1) Basement Bed, with Early Chellean hand-axes to 18 inches.
(2) Estuarine Forest-Bed, with Early Chellean mammalian fauna to 8 feet.
(3) *Leda myalis* Bed to 10 feet (not, at present, visible).
(4) Boulder Clay to 6 feet.
(5) Chalk erratic, with lines of flints in place, to 20 feet.
(6) Basement Bed to 2 feet.
(7) Yellow Sand stratified to 8 feet.
(8) Pebbly gravel to 5 feet.
(9) Black loamy clay to 5 feet.
(10) Tumultuous deposit of clay, sand, gravel, and chalk erratics to 30 feet.
(11) Surface soil to 2 feet.

Thus, the Early Chellean implements and mammalian remains of East Runton are seen to occur at the base of the Forest-Bed strata at this spot, and to be overlaid by the *Leda myalis* Bed, and the Contorted Drift, strata which are, approximately, 96 feet in total thickness. The implements in the basal layer may perhaps be correlated with those of Early Chellean age found upon the Continent of Europe (6), and the implementiferous horizon at East Runton is probably equivalent in age to the Mauer Sands at Heidelberg in Germany, where the famous human lower jaw-bone was discovered (7).

As set forth in some of my recent papers (8), I regard the glacial deposits of the Norfolk coast as referable to the *Second Glacial Epoch of East Anglia*, and, as these deposits overlie the Early Chellean implements at East Runton, it is clear that this cultural stage must be placed in the First Inter-glacial period of the Eastern counties.

It has been, and still is, the custom of most English geologists with, however, at least one notable exception, Professor W. J. Sollas, F.R.S. (9), to correlate the

uppermost limit of the Pliocene deposits of this country with the uppermost stratum of the Cromer Forest-Bed, and, while the names we give to any geological formations are not of absolutely vital importance, yet it becomes very confusing, when dealing with many Continental geologists and archæologists, to speak of the Cromer Forest-

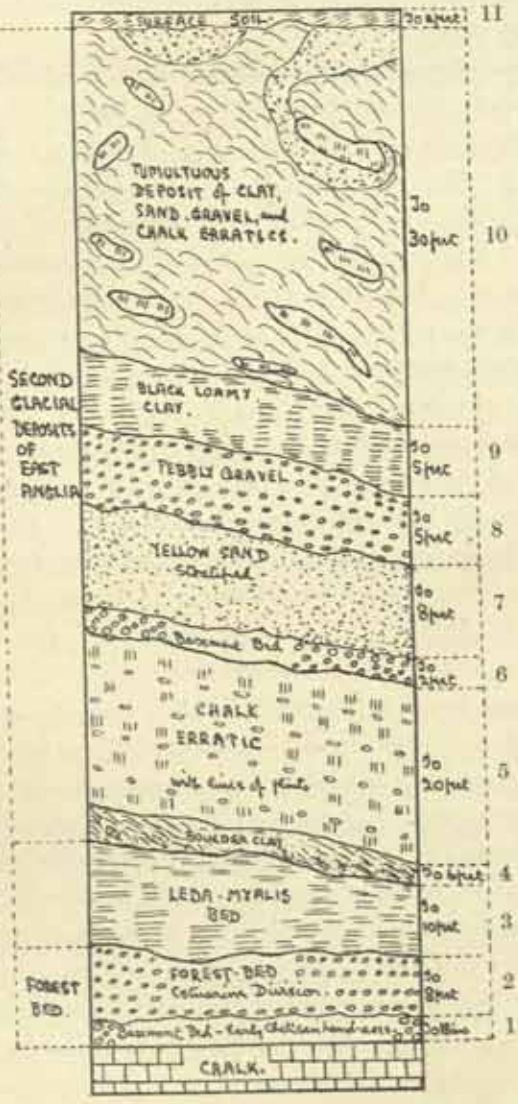


FIG. 1.—DIAGRAMMATIC SECTION, NOT DRAWN TO SCALE, OF THE CLIFF DEPOSITS AT EAST RUNTON.

Bed, with its contained implements, as of Pliocene date, when they relegate it to the succeeding Pleistocene Epoch. Personally, I am of opinion that it would be more reasonable and convenient, because of the definite "break" in the fossil evidence between the Coralline and the Red Crag, the former having been laid down in a

warm sea, while the latter was deposited in water of which the temperature was becoming progressively colder, to regard the Red Crag, *though not its underlying, and distinct, detritus bed, which would remain in the Pliocene*, as marking the lowermost bed of the English Pleistocene. This means that the Norwich Crag, and the Cromer Forest-Bed, &c., would be relegated to the Pleistocene, and I propose to so regard these deposits in the future (10).

Having dealt with the question of the geological age of the deposit resting upon the chalk, and exposed at low water at East Runton, I now wish to give some account of how this bed was investigated, and of the specimens it contains. As I have mentioned above, the East Runton bed is exposed upon the foreshore, beyond the seaward extension of the beach, and we were thus able only to examine it when the tide was out. The method of this examination, which was carried out chiefly by my trained excavator, John Baxter, was first to remove the adherent seaweed, and to then break up the bed by means of small picks. It was thus possible to see exactly what the deposit contained, and to be quite sure that the specimens recovered were without question *in situ*. Surrounding the several exposures of the East Runton Bed (Pl. XXVII) are to be seen extensive areas of flints lying upon the chalk, and these are obviously of the same kind, and the mode of their occurrence is precisely similar, to those forming the well-known flint "spread" at Cromer. The flake-scars upon the specimens from both sites are undoubtedly of the closest similarity, while the colours of these flake-scars, mahogany, ochreous, blue, and shiny-black, are also in every way comparable. Further, an examination of these loose flints both at Cromer and at East Runton, demonstrates (*a*) that they bear no resemblance to the majority of flints found in the glacial or other beds overlying the Forest-Bed; and (*b*) that many of them have attached to portions of their surfaces, and lodged in their interstices, the remains of the ferruginous deposit, present upon the foreshore, and in which they were, without doubt, at one time embedded. Apart from any other evidence, therefore, it becomes necessary to postulate the former existence, at these two places, of some sandy deposit very rich in salts of iron, which has been broken up by marine action, and of which the heavier insoluble residue of flints and other specimens, alone remains intact. In this regard, it is of interest to note that close to the flint-bed upon the Cromer foreshore, there exists a small exposure, *in situ*, upon the chalk, which contains few flints, but is of a very ferruginous sandy nature. It appears to represent the lower portion of the deposit at East Runton, which does not contain so many stones as the upper part. A number of the ochreous flints from Cromer have the remains of a similar ferruginous deposit attached to portions of their surfaces. At East Runton, fortunately, the complete bed is represented, and the investigations carried out have established, finally, the fact that flints in every way comparable with those lying loose upon the chalk, and in close contiguity to the exposures of the deposit, actually occur *in situ* in it. From this accumulation have been recovered specimens exhibiting, upon their flake-scars, the

shiny, black, "black-leaded" surface, and also others showing mahogany, ochreous, and blue patination. It is of interest to note that these varying colours, which must have been imposed upon the flints before their arrival in the deposit where they are now found, have not, in many cases, been permanently stained by the long contact of the ferruginous material surrounding them. This is notably the case with the "black-leaded" specimens, which, judging from the condition of the majority of flints found embedded in peat, acquired their peculiar coloration by contact with this substance, which we know, by the occurrence of the Lower Freshwater Bed, was present in Early Forest-Bed times. The surfaces of these specimens have remained quite unaffected by the ferruginous material surrounding them, and, when washed, exhibit the unchanged black-leaded appearance with which those of us who collect flints upon the Cromer coast are so familiar. As will be shown later, the East Runton deposit contains definite Early Chellean hand-axes, but the flakes found are by no means so numerous as those recovered at Cromer. This, however, did not surprise me, as an examination of the loose flints upon the foreshore, which give an almost exact representation of the stones contained in the bed, had shown that flakes were not over numerous at the East Runton site. The manner in which a flint "spread," such as occurs at Cromer, is formed can be studied at East Runton, and there cannot remain any further doubt that the great majority of the loose specimens have originally been embedded in a deposit resting upon the chalk at the base of the Cromer Forest-Bed strata, and may be put in evidence with as much confidence as those flints actually found *in situ*.

It would appear from a study of several specimens found at East Runton that exposure to the sea and sunlight has the effect of "drawing" the mahogany colour of many of the flaked flints so exposed, and of producing upon them a definite yellow, ochreous coloration. Thus it is possible that the ochreous flints found at Cromer were at one time much darker in colour than they are at the present time. Many of the specimens found at East Runton, both *in situ* and otherwise, have marked striations, but few incipient cones of percussion, upon their surfaces, and indicate, probably, the subjection of the flints to the effects of shore-ice.

Though the basal bed resting upon the chalk at East Runton represents, in my opinion, the lowermost stratum of the Forest-Bed at this spot, I do not wish it to be assumed that I hold the view that all the other exposures of a similar deposit, which also rests upon the chalk, at various places on the Cromer Coast, are necessarily of the same age as the East Runton accumulation. Some of these exposures may represent the Stone Bed beneath the Weybourne Crag, but a lot of work remains to be done upon these various basal Stone Beds which, from my researches, I know to differ greatly, so far as their contents are concerned, in different localities. Another matter which calls for attention is the close association, in time, of the Norwich and Weybourne Crags, with the oldest Cromer Forest-Bed deposits.

Mr. Clement Reid in dealing with this matter states (11), "From the details already given it is clear that the Cromer Forest-Bed lies above the Weybourne Crag, but from the correspondence of the fossils, as far as they are comparable, the two deposits appear to be closely allied. In the Estuarine division of the 'Forest-Bed' we find numerous characteristic Crag species, and the marine mollusca agree so exactly with those of the Weybourne Crag that evidently there was not a sufficient lapse of time between them to allow of any noticeable change in the fauna"; and again (12), "On attempting to compare the fossils of the Cromer Forest-Bed with those of the underlying Crag, we meet with considerable difficulty. In the one case we are dealing mainly with a land fauna and flora, in the other, with little but marine mollusca. This has often led geologists to think that a considerable break occurs between these divisions, for at first sight the species living during the two periods seem to have been quite different . . . When examined more closely, and with the advantage of the greater amount of positive evidence now available, the Norwich Crag and the Forest-Bed are found to be intimately allied. They are so closely connected, that they can only be separated as slightly different horizons in the same period."

So far as the archæological evidence is concerned, I have no doubt that the flint implements found beneath the Red Crag of Suffolk are closely related, though not by any means precisely the same, as those occurring in the Norwich Stone Bed, and that these latter specimens lead on, as it were, to those found in the lowermost layers of the Cromer Forest-Bed. Thus this evidence goes to show that there was no great break in time between these various beds, and points in fact to a slow, though continuous, deposition of a succession of implementiferous strata such as we know occurred in later times.

3. A Description of the Flint Implements found at the Base of the Cromer Forest-Bed at East Runton.

During the research carried out at East Runton a considerable number of humanly-flaked flints were recovered, which have enabled me to ascertain the manner in which the Early Chellean people made their various implements. It is not, of course possible, in this paper, to illustrate and describe all the types of artefacts found, and I propose, therefore, to confine my remarks, chiefly, to the definite hand-axes, or *coups de poing*, of Early Chellean age which are, without doubt, the dominant form in the East Runton deposit. Moreover, it would seem to be of some importance to establish the occurrence of this well-known type of implement at the base of the Forest-Bed resting at, approximately, mean sea-level, on the Norfolk coast, and so, with the exception of describing a typical scraper, *racloir*, and a point of the Early Chellean industry, the hand-axes will alone be dealt with here.

It is a widely held belief among archæologists and others, that all, or nearly all, the hand-axes of Chellean and Early Acheulean age were made from the actual core of the flint nodule, and not from flakes. The close examination, however,

that I have been able to make of large numbers of these specimens in the past, had before my researches at Cromer were begun, made me doubtful of the truth of this assertion. The result of my work on the Norfolk coast, and the above-mentioned examination of Chellean and Early Acheulean implements, has now convinced me that it was only comparatively rarely that these specimens were made from the core of the flint nodule, and that the vast majority were formed from thick flakes or "chunks," struck, usually, from previously prepared blocks of flint. Implements made in this manner exhibit, generally, one flaked surface that is more or less flat, while the other is more or less gabled, or convex. If such specimens are examined it will usually be apparent that the convex surface is formed, in part, of heavily truncated, or incomplete, flake-scars, the original point of impact responsible for the removal of which must have been some little distance away from the existing boundaries of the stone, and could not, in fact, have been struck off the flint when of its present size. Further, an examination of the more or less flat surface of the implements will demonstrate clearly that they have been made from thick flakes, because sometimes this surface is formed of one large area of fracture with cone of percussion, and such a condition of affairs removes any possible doubt as to the manner in which these specimens were made. In many cases, however, the ancient flint flaker was not, for, to me, some quite unknown reason, content to leave his implement with one surface showing a plain area of fracture, but proceeded to remove, by blows delivered on either side of this surface, flakes, the flake-scars of which now cover most of it. But even with such specimens it is possible in most cases, to discern upon this more or less flat surface, some small portion of the original flake-scar resulting from the detachment of the chunk of flint from the parent block, and by such recognition to be sure of the manner in which the implement was formed.

In the following table I give the results of the examination I have carried out of 261 implements, ranging in type from the Early Chellean to the Acheulean, contained in my own collection, and in that housed in the Museum at Ipswich.

In compiling this table I was at pains to put any specimen about which there might be any objection as to my interpretation of the manner in which it was made, into the column marked "doubtful," but, though I have done this in order to be on the safe side, I have not myself much doubt that the great majority of the implements thus classified were not made from the actual core of the flint nodule.

Type of Implement.	Number Examined.	Made from Flakes.	Made from Tabular Flint.	Made from Nodule.	Doubtful.	Totals.
Early Chellean	54	25	2	10	17	54
Chellean and Acheulean	97	53	3	9	32	97
Chellean and Acheulean	85	64	—	9	12	85
Acheulean	25	12	1	2	10	25
	261	154	6	30	71	261

In the case of the above specimens the conclusions as to the manner of their manufacture were arrived at by an examination of the flake-scars upon their surfaces. The accuracy of this diagnosis is greatly strengthened by the discoveries at Cromer and at East Runton, where not only the implements themselves show the above-mentioned characteristics, but where some of the prepared cores from which the thick flakes were struck, have been recovered. So far as my knowledge extends, such cores have not before been found in association with Early Chellean implements, and their occurrence in Norfolk shows clearly that the manner of detaching flake-implements from prepared nuclei, such as reached its greatest perfection in Mousterian-palæolithic times, was already a well recognized method of implement-making in the remote period of the Cromer Forest-Bed, as it was also, to a limited extent, even in pre-Red Crag days (13).

In Fig. 2 I illustrate the sectional views of each of the hand-axes described in this paper, together with one (Fig. 15) from the lower gravel at the well-known Palæolithic site of Warren Hill, Suffolk. An examination of this illustration (Fig. 2) will show that, with the exception of two specimens (Figs. 8 and 11), all the implements exhibit a more or less flat base, which represents the fracture-surface produced when the chunk of flint was struck off the prepared core. The Early Chellean industry of Cromer, and of East Runton, contains, as I have stated, examples of implements other than hand-axes, and these former specimens have obviously been made, in most cases, from flakes which show truncated flake-scars on one of their surfaces.

Most of the specimens found at Cromer, and at East Runton, exhibit a peculiar wearing away of their ridges and outstanding portions which, at first sight, might be attributed solely to attrition. There would not seem much doubt that this kind of wear, which is rarely met with, so far as I know, to such an extent, upon implements found in river gravels, has been set going in the first place by some amount of knocking about received by the specimens before their arrival in the East Runton bed. But, from a study of a large number of flints found *in situ* in this deposit, I conclude that this breaking down of the ridges and outstanding portions, has been accelerated by some solvent present in the deposit, which has attacked and gradually removed the already weakened areas of the parts of the flints I have mentioned. A similar curious condition of wear has been notified in flints from beneath the Red, and the Norwich Crags (14).

It is to be remarked that many more ochreous specimens occur at the Cromer site than at East Runton, where the " black-leaded " variety is the more numerous. I am at present of opinion that these two varieties of flint implements, though coming from the same geological horizon, are nevertheless different from each other, and are probably to be referred to two slightly different periods. So far, I have not found any specimen of either the ochreous, or the " black-leaded " kind, which, by its having been re-worked, would show which of the two colorations must take precedence in antiquity, but the angle of the edge-flaking of the two series has been

measured and shows that, so far as this characteristic is concerned, there is a difference between them.

Variety of Flint.	Number Examined.	Average Angle of Edge-flaking.
Ochreous	22	67°
Black-leaded	28	82°

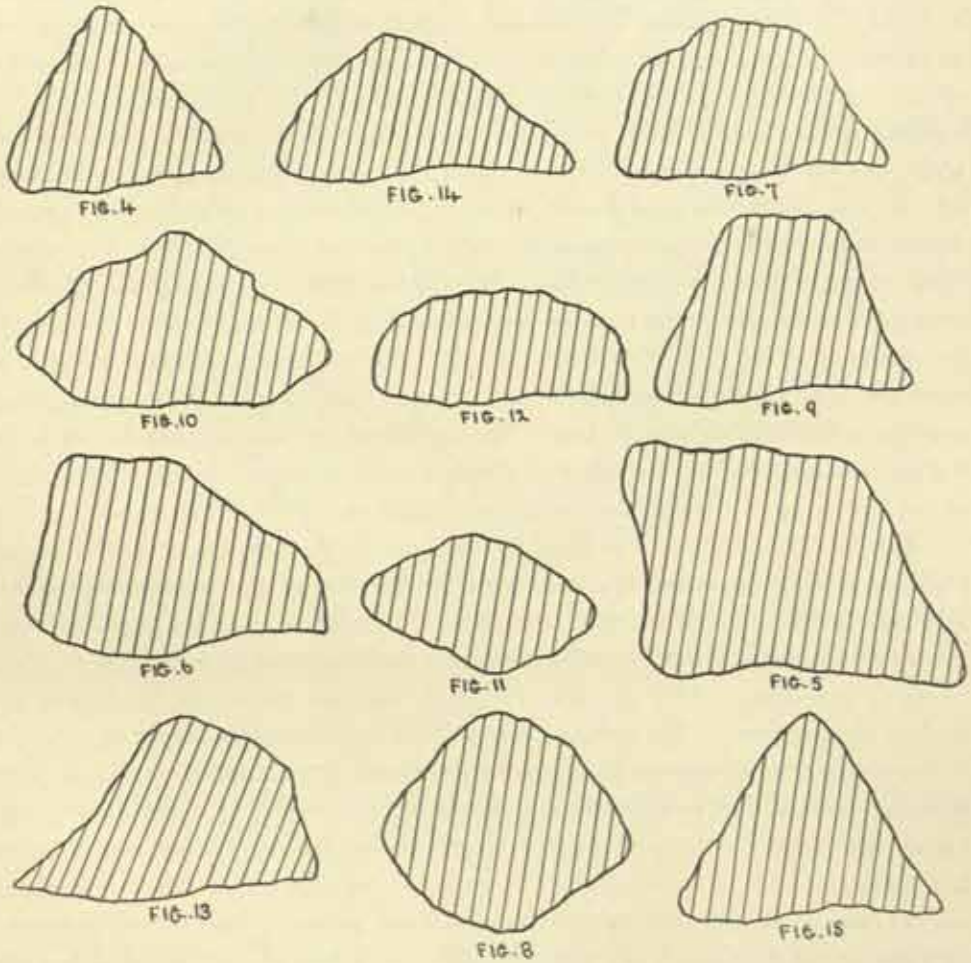


FIG. 2.—SECTIONS OF VARIOUS HAND-AXES DESCRIBED IN THIS PAPER.

Unfortunately, flakes in the "black-leaded" industry are by no means numerous, but this is not the case with the ochreous variety found at Cromer, and measurements of twenty-five of these show the average fracture-angle to be 127·8° and the average wing-angle 150°. I have now found eighteen Early Chellean hand-axes of varying

degrees of "quality" in form and flaking *in situ* in the East Runton deposit, but it will be recognized that the large "spreads" of flints in close association with the exposure of this bed upon the foreshore, afford a much better chance of finding a bigger number of good specimens than is afforded by the slow process of excavation.

The Early Chellean hand-axes from the Cromer Forest-Bed are very homogeneous in character so far as the flake-scars they exhibit and the manner of their manufacture are concerned, as the following description of twelve selected specimens will show. All these hand-axes appear to be adapted for use in the hand, and were apparently not hafted. The term "upper surface" in the text, refers to the surface illustrated.

Fig. 3.—This specimen was found by Mr. A. S. Barnes upon the foreshore-site at Cromer, and lodged in its interstices are to be seen the remains of the ferruginous deposit in which the flint was, at one time, embedded. It exhibits upon its flaked surfaces a very glossy black coloration, and carries a number of weathered-out striæ, but few incipient cones of percussion. The ridges and outstanding portions of the specimen show a considerable amount of the peculiar breaking down to which attention has been drawn in this paper. The upper surface of the flint is of a convex form, and is covered by large flake-scars. On the right-hand side of the specimen is a large and well-formed cone of percussion (Fig. 3) showing where an attempt was made to detach a thick flake, or "chunk," such as those from which so many of the Early Chellean implements of the Cromer coast were made. This specimen, then, may be regarded as a prepared core. The under surface shows a good deal of rough flaking, and exhibits one or two small patches of blackish-grey cortex. The flaking of the flint except for one or two insignificant flake-scars is all of one period.

Fig. 4.—This specimen was found by me upon the foreshore-site at East Runton, and lodged in its interstices are to be seen the remains of the ferruginous deposit in which the flint was, at one time, embedded. It exhibits, upon its flaked surfaces, a very glossy black coloration, and carries some weathered-out striæ, but few incipient cones of percussion. The ridges and outstanding portions of the implement are slightly broken down. The specimen has a thick butt upon which a patch of cortex is observable, and its upper surface carries two heavily truncated flake-scars (showing that the piece of flint was struck off a prepared core), and is of a markedly gabled form. This form has been attained by the removal of flakes by blows, one of which has given rise to a prominent cone of percussion, delivered upon either side of the central ridge, and upon the more or less flat under surface. This surface is formed by a number of flake-scars, and the implement shows definite signs of use both at the point, and on the right-hand side. The flake-scars of the specimen are all of one period.

Fig. 5.—This specimen was found by Mr. J. E. Sainty upon the foreshore-site at Cromer, and lodged in its interstices are to be seen the remains of the ferruginous deposit in which the flint was, at one time, embedded. It exhibits, upon its flaked surfaces, a purplish-black coloration, which in places is very glossy, and carries

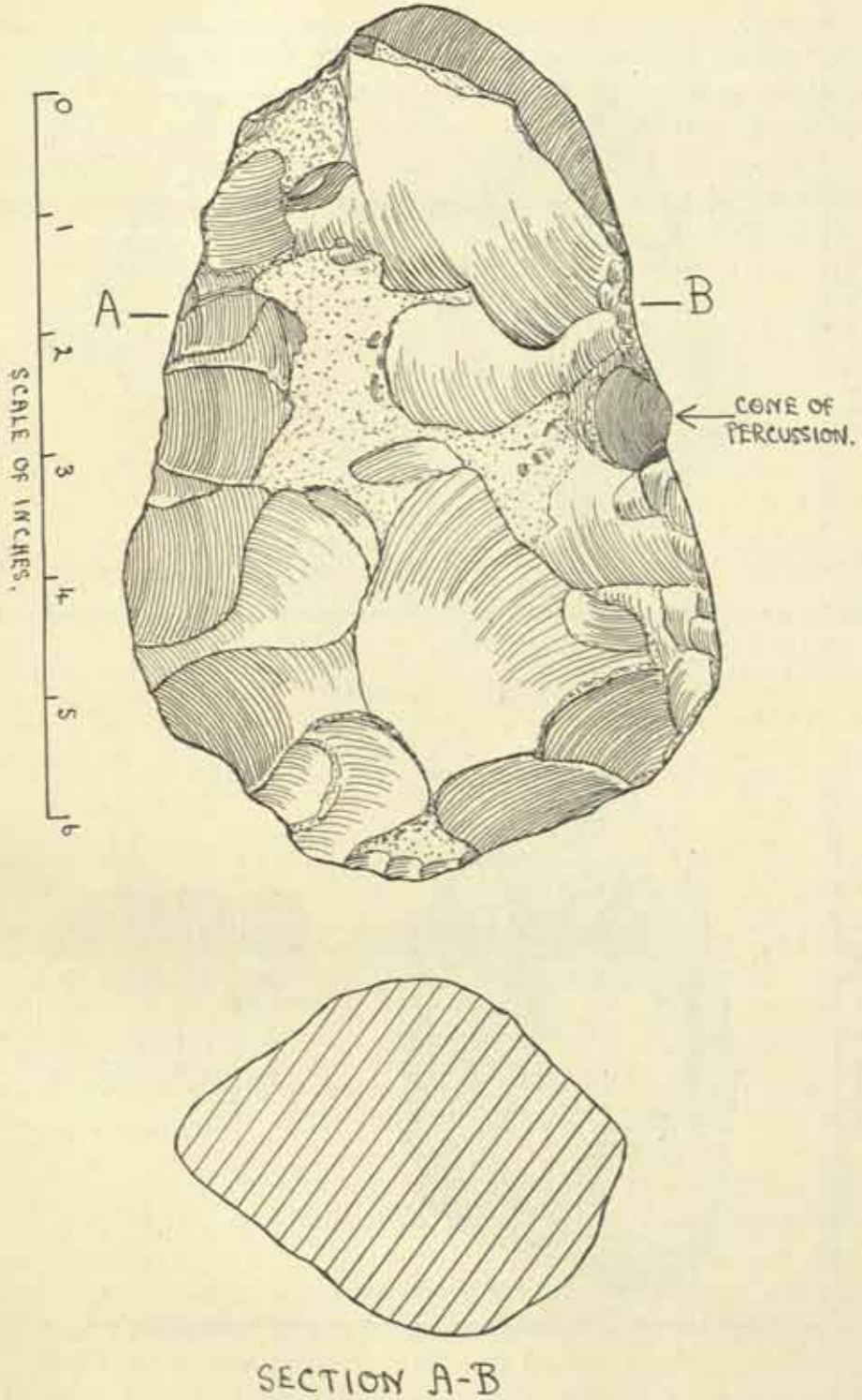


FIG. 3.—LARGE UNSTRUCK CORE OF EARLY CHELLEAN AGE, FROM FORESHORE-SITE AT CROMER. × $\frac{1}{2}$

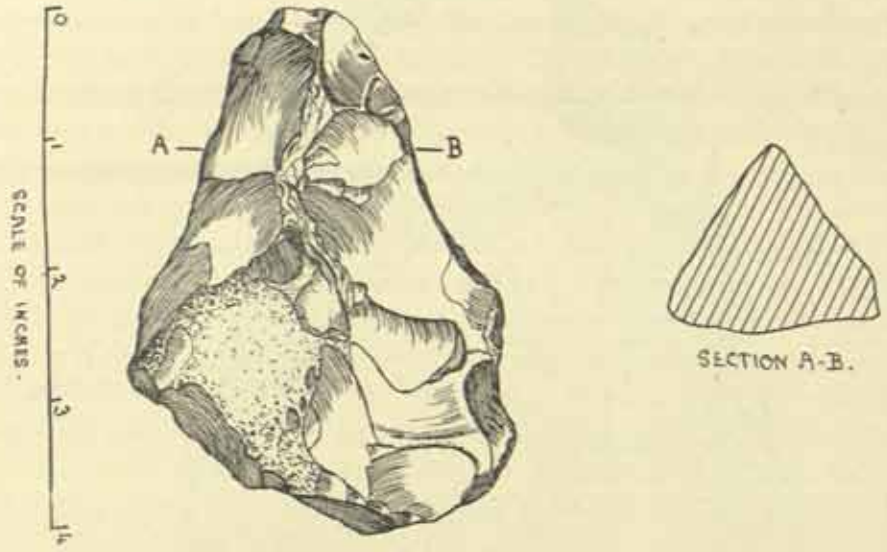


FIG. 4.—EARLY CHELLEAN HAND-AXE FOUND ON THE FORESHORE-SITE AT EAST RUNTON. × ½.

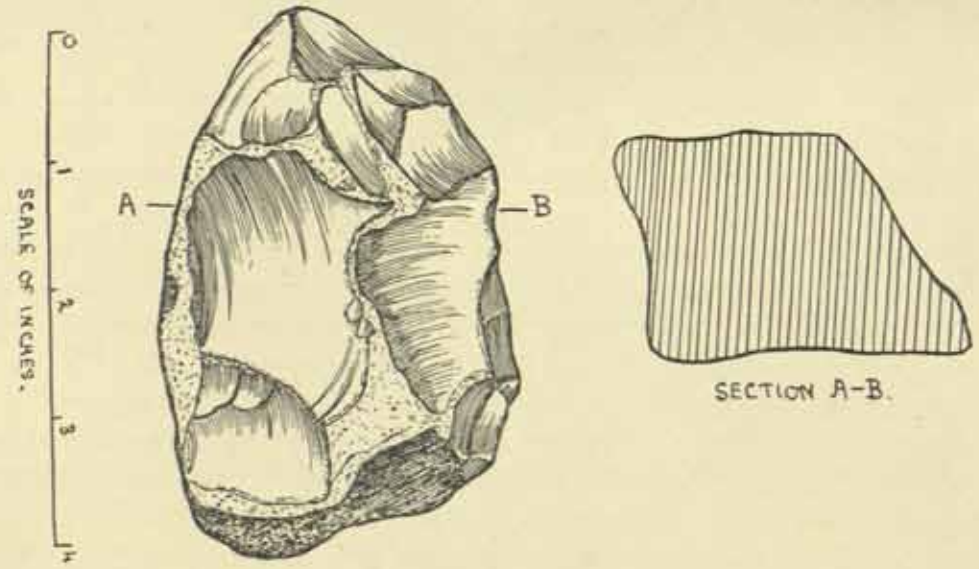


FIG. 5.—EARLY CHELLEAN HAND-AXE FROM THE FORESHORE-SITE AT CROMER. × ½.

some weathered-out striæ, but few incipient cones of percussion. The ridges and outstanding portions of the implement are considerably broken down. The left-hand side, and the butt of the specimen, are thick, and exhibit patches of a blackish-grey cortex. The upper surface carries some heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core), and is of a markedly convex form. The present outline of the specimen has been attained by flake-removing blows upon the upper portion of the thick left-hand side, and upon the more or less

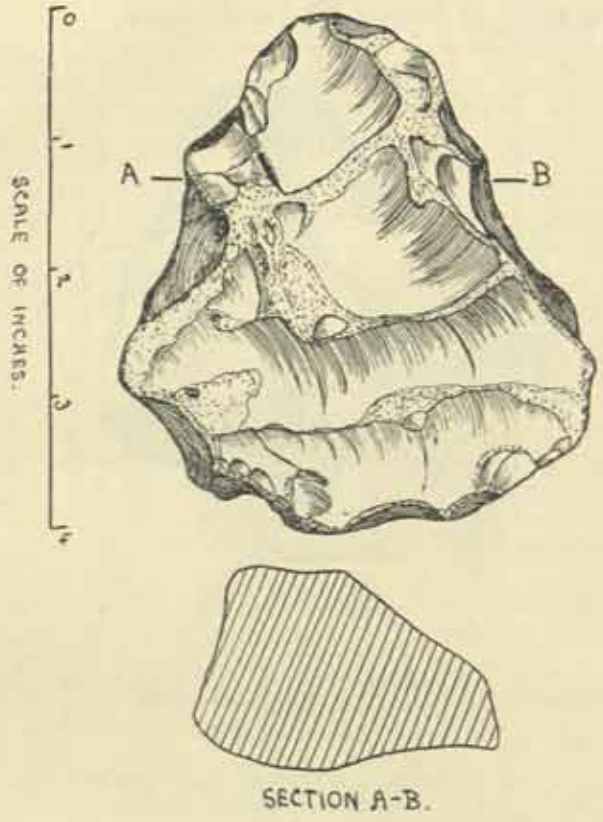


FIG. 6.—EARLY CHELLEAN HAND-AXE FOUND IN SITU IN THE BASAL CROMER FOREST-BED AT EAST RUNTON. × ¾.

flat under surface. This surface is formed of the plain area of fracture produced when the "chunk" was detached from the parent flint, and the implement shows extensive signs of use on the right-hand side. All the flaking of the specimen, with the exception of one or two negligible flake-scars, is of one period.

Fig. 6.—This specimen was found by John Baxter (excavator to J. Reid Moir) *in situ* in the bed resting upon the chalk and exposed upon the foreshore at East Runton. The implement exhibits upon its flaked surfaces a mahogany coloration, merging to ochreous in places, and carries a number of weathered-out striæ, but few

incipient cones of percussion. The ridges and outstanding portions of the specimen are considerably broken down. The implement has a thick, flaked butt, and its upper surface is composed of several heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core) and is of a somewhat convex form. The present outline of the specimen has been attained by flake-removing blows delivered, chiefly, upon the more or less flat under surface. This surface is formed of the plain area of fracture produced when the "chunk" was detached from the parent flint, and the implement shows signs of use at the point, and on the right-hand side. All the flaking of the specimen is of one period.

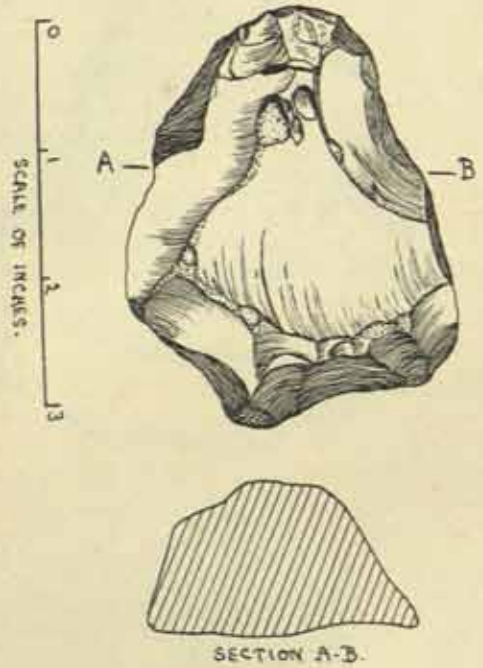


FIG. 7.—EARLY CHELLEAN HAND-AXE FOUND IN SITU IN THE BASAL CROMER FOREST-BED AT EAST RUNTON. × $\frac{2}{3}$.

Fig. 7.—This specimen was found by John Baxter *in situ* in the bed resting upon the chalk and exposed upon the foreshore at East Runton. The implement exhibits, upon its flaked surfaces, a dark chestnut coloration due to a very thin deposit of the ferruginous material in which it has been embedded. This stain, however, is not of a permanent nature and the washing to which the flint has been subjected has already removed some of it. Where this removal has taken place the surface is seen to be of a purplish-grey colour, and to carry no gloss. The ridges and outstanding portions of the implement are considerably broken down. The specimen carries some weathered-out striæ, but no incipient cones of percussion. The butt is thick and flaked, and the upper surface of the implement is composed of some

heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core), and exhibits a markedly convex form. The more or less flat under surface of the specimen is made up of the remains of the primary flake-scar produced when the "chunk," from which the implement is made, was detached from the parent flint, and by a flake-scar due to a blow delivered upon the lower portion of the narrow end of the implement. This peculiarity which is, as it were, prophetic of the flake-scar produced by the *tranchet* blow in the manufacture of certain Neolithic axes, has been observed upon several of the Early Chellean hand-axes from the Norfolk

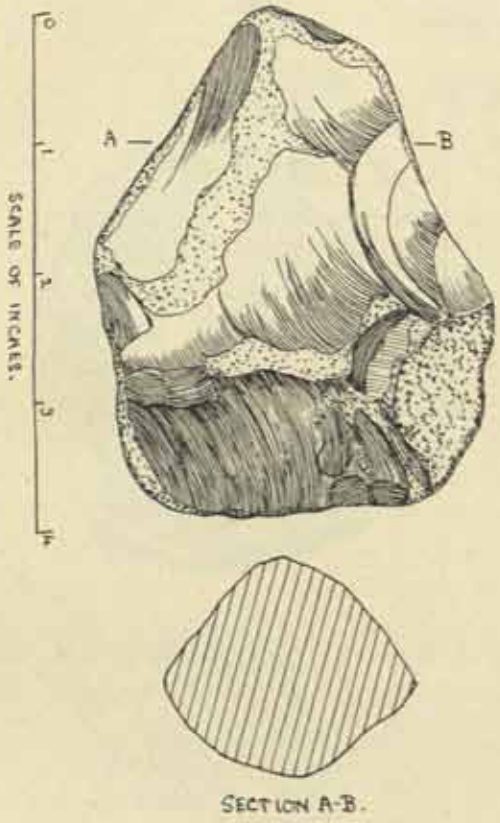


FIG. 8.—EARLY CHELLEAN HAND-AXE FROM THE FORESHORE-SITE AT CROMER. × ½.

coast and elsewhere. The implement (Fig. 7) shows considerable signs of use at the narrow end, and all its flake-scars are of one period.

Fig. 8.—This specimen was found by me upon the foreshore-site at Cromer, and has attached to one small portion of its surface the remains of the ferruginous deposit in which it was, at one time, embedded. The implement exhibits upon its flaked surfaces a glossy blackish-brown coloration, interspersed with patches of yellowish-brown, and one or two weathered-out striæ, but no incipient cones of

percussion. The ridges and outstanding portions of the specimen are considerably broken down. The implement has a thick butt upon which a patch of cortex is observable, and, as another patch of this material is present upon the under surface, it appears that this specimen was made from a nodule of flint, and not from a thick flake struck off a prepared core. But the fact that the upper surface exhibits heavily truncated flake-scars makes it clear that the nodule must have been of a large size before being transformed into an implement. The upper surface is of a convex form, and is composed of flake-scars due, chiefly, to blows delivered upon the flatter under surface. This surface is formed by a number of flake-scars, and the flaking of the specimen is all of one period.

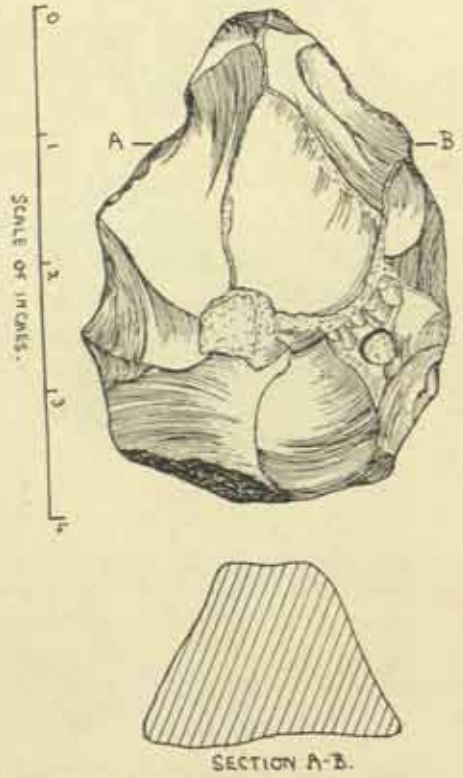


FIG. 9.—EARLY CHELLEAN HAND-AXE FROM THE FORESHORE-SITE AT CROMER. × ⅔.

Fig. 9.—This specimen was found by Mr. J. E. Sainty upon the foreshore-site at Cromer, and has attached to a patch of cortex on the upper surface, the remains of the ferruginous deposit in which it was, at one time, embedded. The implement exhibits, upon its flaked surfaces, a glossy black coloration (which, in places, merges into a dark grey), some weathered-out striæ, but no incipient cones of percussion. The ridges and outstanding portions of the specimen are somewhat broken down. The implement has a thick butt, formed of flake-scars, and an area of grey cortex,

and the upper surface shows a heavily truncated flake-scar (indicating that the piece of flint was struck off a prepared core). The present outline of the flint is due to flake-removing blows delivered, chiefly, upon the more or less flat under surface, which is composed of the plain area of fracture produced when the chunk of flint, from which the implement is made, was detached from the parent block. The implement shows abundant signs of use at the pointed end, and on either side, and the flaking,with the exception of one or two negligible flake-scars, is all of one period.

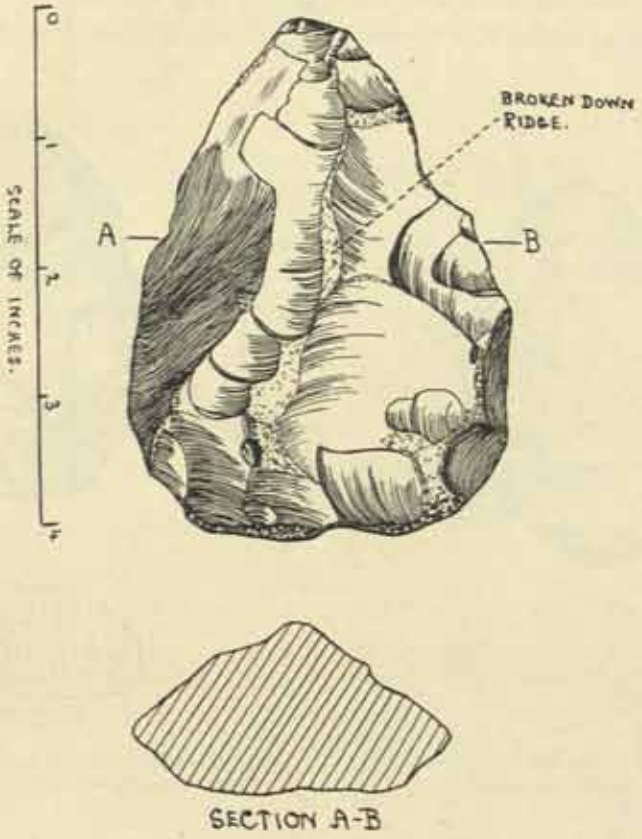


FIG. 10.—EARLY CHELLEAN HAND-AXE FOUND ON THE FORESHORE-SITE AT EAST RUNTON. × ½.

Fig. 10.—This specimen was found by me upon the foreshore-site at East Runton and has, lodged in some of its interstices, the remains of the ferruginous deposit in which it was at one time embedded. The implement exhibits, on its flaked surfaces, a purplish-brown coloration, which, in places, merges into a definite ochreous shade, such as occurs so freely upon flints on the foreshore-site at Cromer, some few weathered-out striæ, but no incipient cones of percussion. The edges and outstanding portions of the specimen are considerably broken down (as indicated in Fig. 10).

The implement has a thick, flaked butt, and the upper surface shows several heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core) and exhibits a somewhat convex form. The left-hand edge of the specimen shows a reversed "S" curve which, however, was in all probability not intentionally produced. The more or less flat under surface is formed of the plain area of fracture produced when the flake, from which the implement is made, was detached from the parent block. The implement shows definite signs of use at the pointed end, and the flaking is all of one period.

Fig. 11.—This specimen was found by me upon the foreshore-site at Cromer, and exhibits upon its flaked surfaces a dark, chestnut-brown coloration, some few

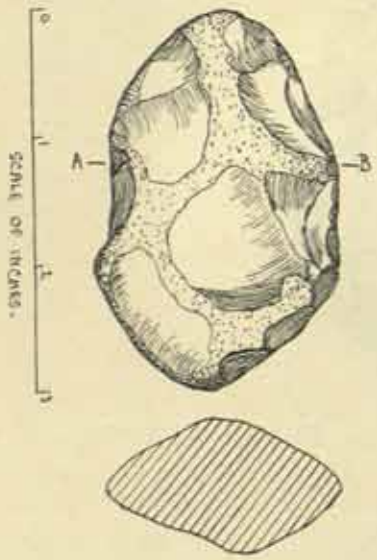


FIG. 11.—EARLY CHELLEAN HAND-AXE FROM THE FORESHORE-SITE AT CROMER. × ⅔.

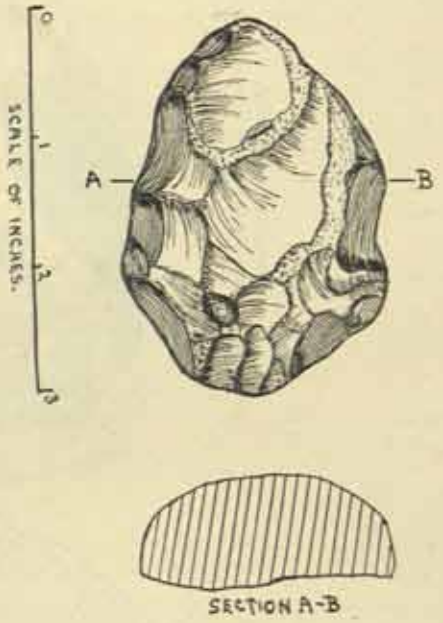


FIG. 12.—EARLY CHELLEAN HAND-AXE FROM THE FORESHORE-SITE AT EAST RUNTON. × ⅔.

weathered-out striæ, but no incipient cones of percussion. The edges and outstanding portions of the implement are considerably broken down. The specimen shows, on the upper surface, one heavily truncated flake-scar (indicating that the piece of flint was struck off a prepared core), and is of a somewhat convex form. The under surface exhibits a large, and more or less flat, area of fracture produced when the flake, from which the specimen is made, was detached from the parent block, and also, on the left-hand side, two flake-scars and an area of blackened cortex. All the flaking of the implement is of one period.

Fig. 12.—This specimen was found by Mr. Guy Maynard upon the foreshore-site at East Runton, and exhibits upon its flaked surfaces a purplish-brown colora-

tion, which, in places, merges into a definite ochreous shade, some few weathered-out striæ, and a number of incipient cones of percussion. The edges and out-standing portions of the implement are considerably broken down. The specimen shows, upon its upper surface, several heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core) and is of a markedly convex form. The present outline of the implement has been attained by flake-removing blows delivered upon the more or less flat under surface, which is composed, chiefly, of the plain area

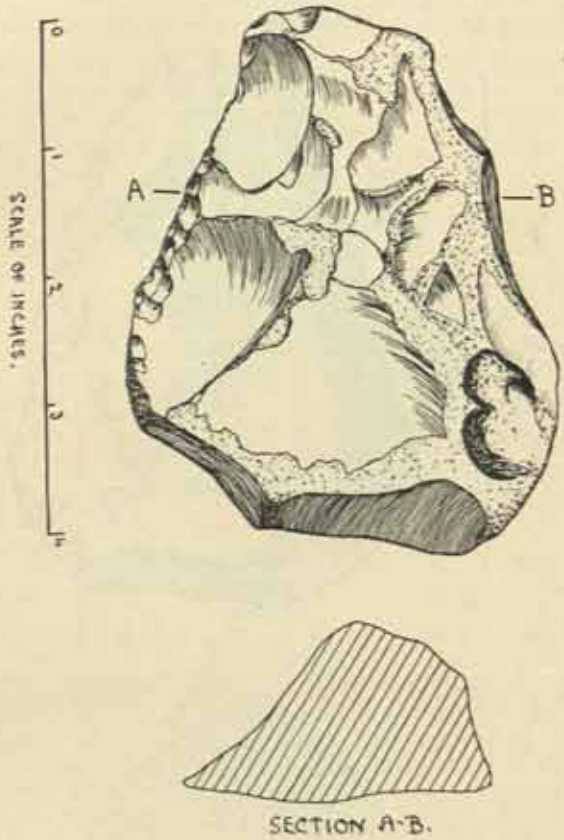


FIG. 13.—EARLY CHELLEAN HAND-AXE FOUND ON THE FORESHORE-SITE AT EAST RUNTON. × $\frac{2}{3}$.

of fracture produced when the flake, from which the specimen is made, was detached from the parent block. All the flake-scars of the specimen are of one period.

Fig. 13.—This specimen was found by John Baxter upon the foreshore-site at East Runton, and exhibits upon its flaked surfaces a marked ochreous coloration, interspersed with patches of purplish-black and a few weathered-out striæ and incipient cones of percussion. The edges and outstanding portions of the implement are considerably broken down. The specimen shows, upon its upper surface, several heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared

core) and is of a markedly convex form, the butt is flaked and thick, and the present outline of the specimen has been attained by flake-removing blows delivered upon the more or less flat under surface, which exhibits the plain area of fracture produced when the flake, from which the implement is made, was detached from the parent block. The specimen shows signs of use on the left-hand edge, and all the flaking is of one period.

Fig. 14.—This specimen was found by me upon the foreshore at Sheringham, opposite to Beeston Hill, where there occurs a spread of flints of the same kind as at

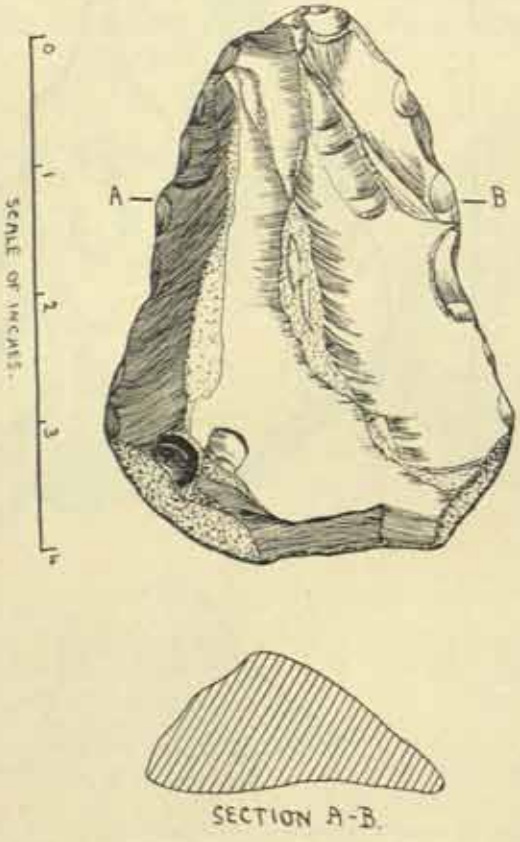


FIG. 14.—EARLY CHELLEAN HAND-AXE FOUND ON THE FORESHORE-SITE AT SHERINGHAM. × ½.

East Runton and at Cromer. The implement exhibits, upon its flaked surfaces, a dark chestnut-brown coloration, and a few weathered-out striæ and incipient cones of percussion. The edges and outstanding portions of the specimen are considerably broken down. The implement shows, upon its upper surface, a number of heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core) and is of a markedly convex form. The lower surface is composed of the plain area of fracture produced when the flake, from which the specimen is made, was detached

from the parent block. The swelling of the bulb of percussion can be seen at the narrow end of the lower surface, and at the broader end a semi-hinge fracture, which forms part of the butt of the implement, is observable. The specimen shows extensive signs of use at the narrower end, and along either edge, and, except for one or two negligible flake-scars, the flaking is all of one period.

Fig. 15.—This specimen was found in the Lower Gravel at the well-known Palæolithic deposit at Warren Hill, near Mildenhall, Suffolk, and is illustrated and described in order to show that Early Chellean flint implements, such as occur in the Cromer Forest-Bed, are also present in ancient deposits of gravel. The Warren

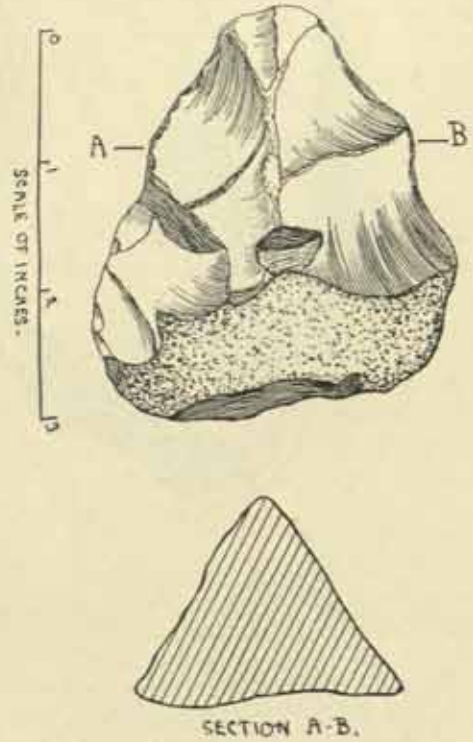


FIG. 15.—EARLY CHELLEAN HAND-AXE FOUND IN THE LOWER GRAVEL AT WARREN HILL, SUFFOLK. × ⅔.

Hill gravel is, probably, of so-called " Middle Gravel " age, and is therefore separated from the Forest-Bed by the glacial deposits represented by the Tills and Contorted Drift of Cromer. The Early Chellean specimens found in this Middle Glacial gravel are, therefore, derived specimens, and the age of the deposit in which they occur is no criterion of the antiquity of its contained implements. The specimen (Fig. 15) exhibits, on its upper, flaked, surfaces, a lightish-blue coloration, while its lower surface is a greenish-black shade. The flaked areas carry a few weathered-out striæ, and a large number of incipient cones of percussion. The edges and outstanding portions of the implement are somewhat broken down, but do not exhibit this feature

to anything like the same degree as do the majority of the specimens from the Cromer Forest-Bed. The upper surface exhibits one heavily truncated flake-scar (indicating that the chunk of flint was struck off a larger mass), and is of a markedly gabled form. The butt is thick, and formed, chiefly, of cortex, and the present outline of the specimen has been attained by flake-removing blows delivered upon the more or less flat under surface. This surface is composed of several flake-scars, and a portion of the original fracture produced when the piece of flint was detached from the parent

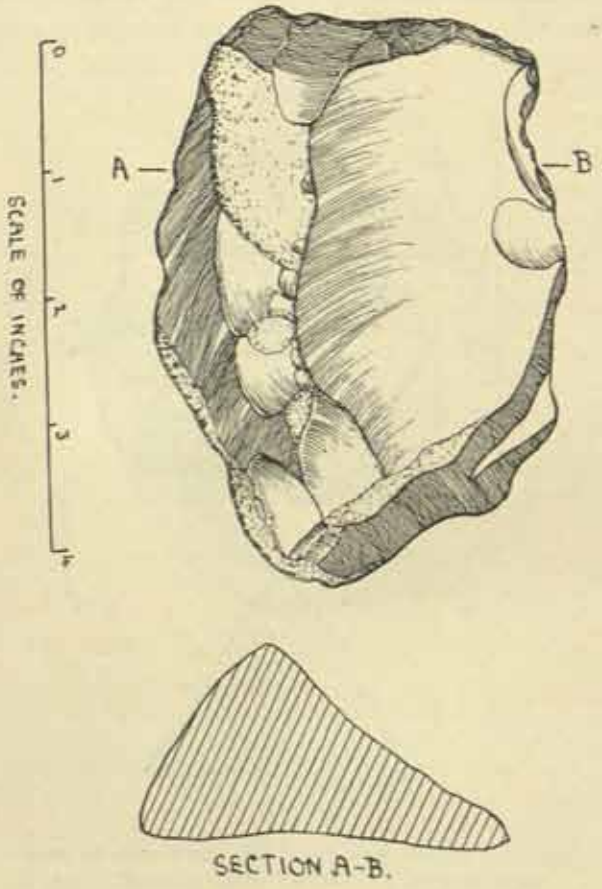


FIG. 16.—EARLY CHELLEAN SCRAPER FROM THE FORESHORE-SITE AT EAST RUNTON. × ¾.

block, is observable upon it. The implement shows signs of use at the narrower end and all the flaking, with the exception of one or two negligible flake-scars, is of one period (15).

Implements other than Hand-axes found at East Runton.

Fig. 16.—This specimen was found by me upon the foreshore-site at East Runton, and exhibits, upon its flaked surfaces, a purplish-black coloration interspersed with

unchanged areas of cherty, grey flint. The upper surface shows three heavily truncated flake-scars (indicating that the piece of flint was detached from a prepared core), and is of a gabled form. The uppermost portion of the upper surface has been flaked into a more or less straight line by blows falling upon the under surface, and the specimen may be regarded as a fine example of an Early Chellean scraper, while its outline is prophetic of the scrapers of similar form found in later Mousterian deposits (16). The edges and outstanding portions of the implement are somewhat broken down, and the flaked areas exhibit a few weathered-out striæ and incipient cones of percussion. The under surface is formed of the plain area of fracture produced when the flake, from which the specimen is made, was detached from the

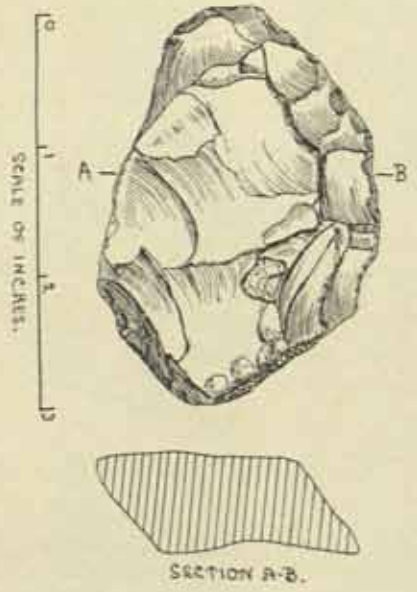


FIG. 17.—EARLY CHELLEAN RACLOIR FROM THE FORESHORE-SITE AT EAST RUNTON. × $\frac{2}{3}$.

parent block. All the flaking, with the exception of a few small flake-scars, is of one period.

Fig. 17.—This specimen was found by me upon the foreshore-site at East Runton and exhibits, upon its flaked surfaces, a glossy black coloration and a few weathered-out, small striæ, but no incipient cones of percussion. The edges and outstanding portions of the implement are slightly broken down. The upper surface shows some heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core), and the whole of the curving edge on the right-hand side has been modified by secondary work due to flake-removing blows delivered upon the more or less flat under surface. The specimen may be regarded as a typical *racloir*, or

side-scraper, of Early Chellean times. The under surface is composed, chiefly, of the plain area of fracture produced when the piece of flint, from which the implement is made, was detached from the parent block, and the flaking of the implement is all of one period.

Fig. 18.—This specimen was found by John Baxter *in situ* in the bed exposed upon the foreshore at East Runton, and exhibits, upon its flaked surfaces, a glossy black coloration, some weathered-out striæ, and a few incipient cones of percussion. The edges and outstanding portions of the implement are slightly broken down. The upper surface is composed of a number of heavily truncated flake-scars (indicating that the piece of flint was struck off a prepared core) and the present pointed form of the specimen has been attained by regular and skilful secondary flaking along its

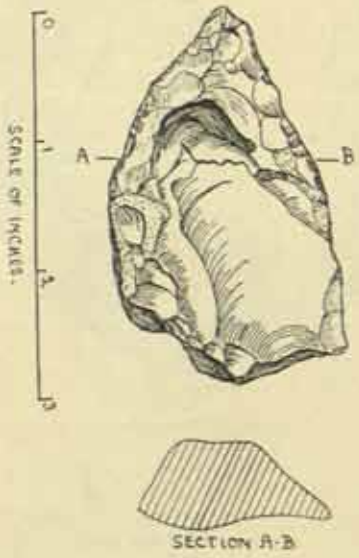
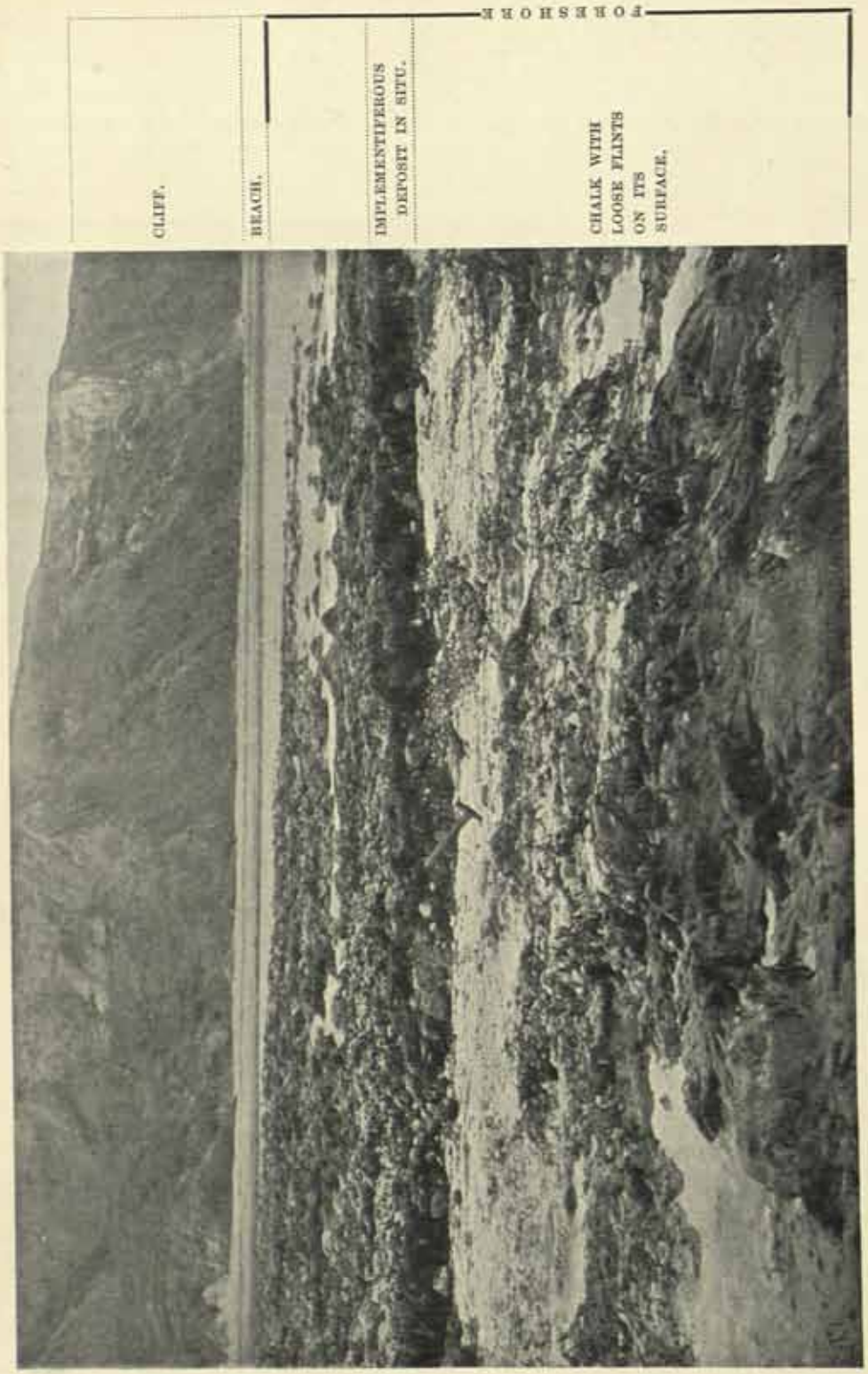


FIG. 18.—EARLY CHELLEAN POINT FOUND IN SITU IN THE BASAL CROMER FOREST-BED AT EAST RUNTON. × ½.

right- and its left-hand edges. The specimen may be regarded as a typical point of the Early Chellean period.

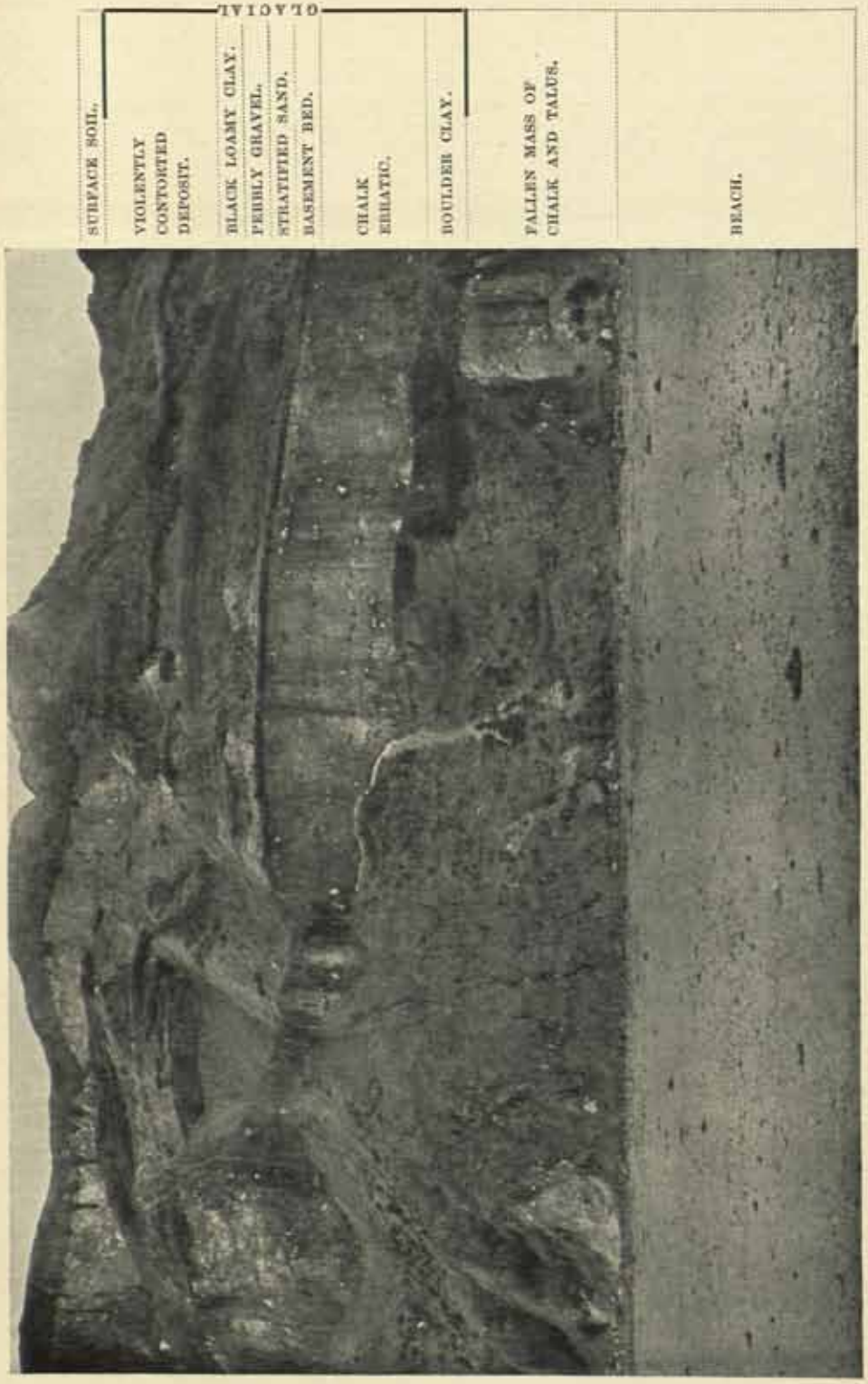
The under surface exhibits the plain area of fracture, with bulb of percussion, produced when the flake of flint, from which the implement is made, was detached from the parent block. All the flaking, with the exception of one small flake-scar, is of the same period.

It will be noticed that, in this paper, I have described only the flint implements referable to the lowermost layer of the Cromer Forest-Bed. The Middle and Upper divisions of this deposit, together with the overlying glacial accumulations, I hope to deal with in later papers, as the Cromer researches proceed. I have to thank my



VIEW OF FORESHORE AT EAST RUNTON, WITH IMPLEMENTIFEROUS DEPOSIT (BEHIND SMALL PICK) RESTING UPON THE CHALK. THE HIGH CLIFFS ARE SEEN IN THE BACKGROUND.

FURTHER DISCOVERIES OF EARLY CHELLEAN FLINT IMPLEMENTS IN THE CROMER FOREST-BED OF NORFOLK.



VIEW OF CLIFF-SECTION AT EAST RUSTON, SHOWING THE IMMENSE GLACIAL DEPOSITS ABOVE THE FOREST-BED AT THIS SPOT.

FURTHER DISCOVERIES OF EARLY CHELLEAN FLINT IMPLEMENTS IN THE CROMER FOREST-BED OF NORFOLK.

friends, Mr. A. S. Barnes, Mr. J. E. Sainty, and Mr. Frank Barclay, of Cromer, for the loan of specimens, and for other help, during my recent work on the Norfolk coast.

BIBLIOGRAPHY.

(1) Moir, J. Reid.—*The Great Flint Implements of Cromer, Norfolk* (W. E. Harrison, Publisher, The Ancient House, Ipswich).

(2) "The Geology of the Country around Cromer," *Mem. Geol. Survey* (explanation of Sheet 68 E), by Clement Reid, F.R.S.

(3) "The Geology of the Country around Cromer," *Mem. Geol. Survey* (*see* Folding Plate at end of Volume).

(4) "The Geology of the Country around Cromer," *Mem. Geol. Survey* (*see* Folding Plate at end of Volume).

(5) Moir, J. Reid.—*The Great Flint Implements of Cromer, Norfolk* (W. E. Harrison, Publisher, The Ancient House, Ipswich).

(6) Commont, V.—*Les Hommes contemporains du Renne*, p. 5.

(7) O. Schoetensack.—*Der Unterkiefer des Homo Heidelbergensis aus dem Sanden von Mauer, bei Heidelberg*, p. 19. Leipzig, 1908.

(8) Moir, J. Reid.—*The Great Flint Implements of Cromer, Norfolk*, Fig. 2 (W. E. Harrison, Publisher, The Ancient House, Ipswich).

(9) Sollas, W. J.—*Ancient Hunters and their Modern Representatives*, pp. 642–643 (Macmillan, London).

(10) In this view I am following Sir Ray Lankester, who, on several occasions, has discussed this matter with me.

(11) "The Geology of the Country around Cromer," *Mem. Geol. Survey* (explanation of Sheet 68 E), p. 44.

(12) *The Pliocene Deposits of Britain*, pp. 179–180.

(13) Moir, J. Reid.—*Pre-paleolithic Man*, p. 45 (W. E. Harrison, Publisher, The Ancient House, Ipswich).

(14) Lankester, Sir Ray.—*Roy. Anthr. Inst.*, "Occasional Papers," No. 4.

(15) Dr. Frank Corner has sent me, recently, an early Chellean implement dredged from the Thames at Erith, which, in its method of manufacture, condition, and general appearance, is clearly of the same type as the hand-axes described in this paper. The specimen is not heavily rolled, and its occurrence at this low level in the Thames Valley is, in view of the position of the implements of the Cromer coast, of considerable significance.

(16) Moir, J. Reid.—*Journ. Roy. Anthrop. Inst.*, vol. l., 1920, pp. 135–152.

ECONOMIC PSYCHOLOGY OF THE MAORI.[1]

By Raymond Firth, M.A. (New Zealand).

The Problem.

Among a people differing entirely in technical processes, in social organization, in religious belief, in environment, and in general culture from ourselves, it is pertinent to inquire whether the investigator can proceed to the solution of the economic problems which confront him in the same manner as does the economist in studying the phenomena of our own society. It may be that a totally different psychological starting-point is necessary in primitive economics in order to yield us results which are really in accord with native modes of thought and behaviour. The problem of this paper is to ascertain what is the psychological basis of the industry of the Maori of New Zealand, to understand the motives, however vague and confused, which actuate him in entering upon and carrying out any economic undertaking, and his feelings, thoughts, hopes and fears while the task proceeds to its conclusion. To unravel from the tangled skein of mental process the relevant psychological data is no easy task. Not, that as some theorists allege, primitive man thinks in a manner entirely different from what we do. He has the same mind-structure, the same logical methods, as we have. But the reason for our frequent inability to understand the mentality of the native lies in the fact that his starting-point is not ours. For centuries he has been isolated in a different natural environment, living in a different social setting, embedded in a different cultural *milieu*. So that, despite its essential similarity of structure and process, his mind, confronted with the same situation as our own, begins to function with a different set of initial preconceptions; with this different mental background the presentation of the same facts may lead to totally different conclusions. Thus my attempt to delve into what may be termed the economic mentality of the Maori is fraught with great difficulty from the outset. But by careful consideration of those phases of life and thought which bear on the economic, and by knowledge derived from some few years' study in his native land of his general culture and beliefs, I may hope to reach at least an approximate estimate of the nature and relative strength of the motives with which the Maori approaches and carries out any economic undertaking.

[1] The substance of this paper has been read at a Seminar on the Psychology of Primitive Peoples held by Dr. Malinowski (to whom I am indebted for valuable criticism) at the London School of Economics (University of London), in Lent Term, 1925. I have also greatly benefited by the research work in which I have been engaged under the Laura Spelman Rockefeller Fund.

This analysis of motives can be most aptly entered upon by taking as subject for investigation any one typical economic undertaking of a usual kind—one which was often performed by the Maori in former days. Examining its details step by step, we shall be able to gain some insight into what prompts the native at each stage of his task, what ideas lie behind his work and impel him to certain well-defined courses of procedure. To take this typical activity *in toto*, with its sequence of events, and investigate its psychological undercurrents from its commencement till its close, will afford a truer indication of the relative force and the logical outcome of interaction of the motives involved than would the selection of a number of disconnected examples at random to illustrate the various theoretical points. Moreover, in studying closely a concrete example the real issue of the problem shapes itself more clearly, and there is less likelihood of neglecting any important psychological factor in Maori industry. In brief it is, as far as possible, approaching the subject from the native standpoint, which is essential in obtaining results that are true to life as well as to economic method.

BIRD-SNARING AS A TYPE OF INDUSTRY.

I shall take as this typical undertaking the sequence of operations in one mode of fowling, commencing with the snaring of the birds by the *tumu* method—which involves the placing in trees of specially constructed perches with nooses arranged thereon—and proceeding to the subsequent tasks in the apportioning, preserving, storing, and consumption of them when obtained.

This activity has been selected for examination by reason of its comparatively simple character—its manifest aim being to secure food. If it is found that in the simpler case the motivation for action is of a complex nature, then it will be obvious that in the more involved types of economic undertaking, such as the ceremonial exchange of gifts, there will be still less possibility of assuming the operation of a single motive.

It may be mentioned that this method of bird-snaring, though abandoned in most parts of New Zealand as powder and shot became plentiful, is still employed on rare occasions in one or two out-of-the-way districts. The methods here described have been shown to me in detail by several informants, of whom two have employed the same in quite recent years on the borders of the Urewera country. The absence of sheep and cattle in the Urewera fastnesses until recent times, and the craving for flesh food (mentioned below) as a relief from the interminable diet of potatoes, which still form the staple food in many villages, accounts for the persistence of bird-snaring there. I have also been told that after the Waikato War of the 'sixties, until Tawhiao threw open the King Country to the entry of the white man, and the Aukati boundary line was crossed by the *pakeha* (white man) in 1881, there was a great revival of fowling in the interior, especially by the old men, on account of the

scarcity of powder and shot after the natives had virtually withdrawn from communication with towns, traders, and their goods.

Apart from the information personally collected I have drawn extensively in the actual descriptive matter which follows on the work of Mr. Elsdon Best, F.N.Z. Inst., to whom every student of the Maori owes a debt of gratitude for his untiring labours in revealing so many aspects of the mentality of the native. The account of the ceremonial performances in fowling and of the mythology of birds is a synthesis of various notes in his writings.

IMPORTANCE OF BIRDS.

To the Maori, especially to the dweller in the forest-lands such as the Tuhoe district, the interior of the King Country, or the head-waters of the Whanganui River, birds were a most important part of the food supply. The coastal tribes and the people of the lakes had their fish, the dwellers in the more open lands had their *kumara* (sweet potato) plantations and fern root, but in the land of Tuhoe, for instance, fish and *aruhe* were not, and the *kumara* could not be grown to advantage on account of the climate. So forest food was practically the sole means of subsistence, and of this birds comprised the staple portion.

By people in other parts, also, birds were always greatly esteemed; a piece of forest where they congregated, and in which they could be taken during the fowling season, was always jealously preserved by any tribe which was so fortunate as to possess it. At a feast of ceremony, when visitors were present, a bowl of *huahua*, or preserved birds, neatly decorated, was often set in the midst of the provisions as a *pièce de résistance*, and a *taha*, or calabash, of the same was a present often made to a chief of rank, and greatly appreciated. The Arawa still relate the classic story of Uenuku-kopako, an ancestor of gigantic proportions and very fond of the pleasures of the table, who esteemed *huahua* above all delicacies and who in an argument maintained its superiority to water as nourishment. But having consumed an immense quantity thereof, and suffering from the pangs of thirst in consequence, he found himself, by the wiles of his opponent, deprived of the precious liquid. In agony from lack of it, he was thus forced to admit that in the last resort water was of more value than preserved birds for the satisfaction and well-being of man. The dialectics of the narrative, of which I have given the mere skeleton, disclose how greatly *huahua*, especially preserved pigeon, was valued by the gourmets of old, but even to the common people birds were of extreme importance as an article of food.

It must be realized in this connection that there were in New Zealand no large mammals before the advent of the white man with his sheep, horses, and cattle. There was a little native rat, frugivorous, and used by the Maori as food, in the same way as we use the rabbit. Of him we shall have occasion to speak in later days. The Maori dog was domesticated and, though occasionally eaten, seems always to have been a rare animal. Apart from these there was no mammal—beyond man—

to which the Maori could turn for flesh-food. The coastal dweller had his fish, but to the inland tribes the inestimable value of birds as a relief from a vegetable diet can be well understood. In fact there is a special term, *kinaki* (relish), which denotes a piece of flesh-food placed in the basket of *kumara* as a tasty morsel to give variety to the meal and to please the palate.

If the people had been living for a long time on vegetable food it was an occasional practice to despatch a *taua*, a marauding party, to sally forth and capture any hapless wayfarer they might meet, which unfortunate was promptly slain and cooked that he might be used as *kinaki* to brighten-up the monotony of the meals.

No greater insult could be levelled at a Maori than to mention that one of his forbears had served on some particular occasion to grace the festive board by way of *kinaki*—a relish to the sweet potatoes of an ancestor of one's own. To do so was to invite retaliation of direst kind.

Referring for a moment to the habit of the Maori of utilizing other people on occasions to make good any deficit in the food supply, there is no doubt that with most natives there was a distinct liking for human flesh. If a slave was killed by his master for any offence, he was not wasted, but was taken off to the ovens for culinary purposes. As a kindly thought various joints were often sent round to friends and neighbours and were much appreciated. After a victorious raid cannibal orgies took place and often lasted for several days. It is reported by natives that in the Amio-whenua Expedition of 1821, which travelled round the coast of the North Island and covered some seven or eight hundred miles, one gentleman slept every night with a basket of human flesh as a pillow.[1] But apart from these interesting details, it is obvious from any serious consideration of the subject that the supplementing of the food supply by levying toll on the persons of one's slaves or enemies was too spasmodic and irregular a business to be looked to as a means of supplying, in any great measure, the felt need for flesh-food. Hence with most inland tribes great importance was attached to the slaying of birds for their valuable food qualities.

To a lesser extent, also, birds were valued on account of their feathers. Those of the *kuku* (pigeon), *kaka* parrot (Nestor meridionalis), *tui* (Prosthemadera Novæ-Zelandiæ), *kiwi* (Apteryx mantelli) were mostly utilized for ornamenting the finer varieties of mats, while the tail feathers of the *huia* and *kotuku* (white heron) were eagerly sought after to ornament the hair. These latter were worn almost solely by *rangatira*, or people of rank.

This brief note indicates the reasons the Maori had for engaging in the occupation of bird-snaring, the main one being to obtain a supply of valued and needed food, the lesser being to have available a supply of feathers for the decoration of mats and ornamentation of the hair.

But in the work of any primitive people the economic is always complicated by elements of the magico-religious. There are certain observances to be kept,

[1] S. Percy Smith, *Maori Wars of the Nineteenth Century*, 2nd ed., 1910, p. 223.

ceremonies to be performed and spells to be uttered, in connection with the various stages of the labour. The strictly economic can never be absolutely divorced from these. The ethnographer must consider every activity in its social setting, with all its preliminaries, adjuncts, and by-products, in order fully to grasp and make clear the native's attitude towards the task he is performing.

And so, having given the purely economic reasons why the snaring of birds is so keenly followed by the Maori, some indication must also be given of his magico-religious attitude in carrying out that activity, of the place which birds occupy in his esoteric scheme of life, so that we may understand as fully as possible the ramifications of his motives, the reason for all that he sees fit to do in order to attain his ends.

MYTHOLOGY OF BIRDS.

Here it is patent that the best approach is through mythology. When anything is looked upon by a native people as being of some importance in their life, one nearly always finds some piece of mythology in connection with it, a story which purports to account for its origin, which sets it in a definite position in the scheme of existence and, as a general rule, brings it into relation with the pantheon of gods or culture heroes. The ethnographer would naturally expect then, in view of the importance of birds to the Maori as a source of food and material for ornament, that there would be some myth about them. Such a myth there is, arising out of the story of the functions of the Maori gods and the account of the origin of natural objects. An understanding of the foundations of the belief of the native in these matters will make much more comprehensible the ensuing description of the actual procedure of the fowler when engaged in his work.

Briefly told, the main version of the myth states that Tane, the most conspicuous of the offspring of Rangi and Papa, the first parents, and one of the most noteworthy of the departmental gods, was the author of the forest trees and of birds.[1] In his search for the *uha*, the female element wherewith man might be created, Tane found and cohabited with various beings—so runs the exoteric version of the myth, the one which our fowler would probably know—among them Kahu-parauri, by whom were produced Kokomako the bell bird, Kokako the native crow, Koko the *tui*, and other offspring. As the originator of birds, Tane had as one of his many titles the name of Tane mataahi.

These offspring of his were afterwards nourished on the lice from the hair of their ancestor Turangi; which failing to give satisfaction, they were then fed on the vermin which abounded in the heads of the younger relatives—of Tutu, Mako, Toro, Maire, Matai, Miro, and Kahika of the forest of Tane. Tane then turned to the reciting of ritual over the vermin in the heads of his first-born offspring, lest their younger relatives—the birds—perish.

[1] Best, "Maori Religion," *Dominion Museum Bulletin*, No. 10, p. 105; *ibid.*, "Maori Forest Lore," *Trans. N.Z. Inst.*, vol. xli, pp. 189, 269–270.

In this myth we see the relation which the Maori held to exist between the trees of the forest and the birds, for in the elder relatives—Tutu, Kahika, Maire, Miro, and the rest—we have the names of the well-known forest trees, personified in myth, which the feathered denizens of the forest frequent. The vermin from their heads are simply the fruits of those trees, which form the food of the birds. So that, stripped of its personification, the latter part of the myth indicates that Tane, having first produced the forest and its trees, then performed *karakia* (ceremonies) to render these fertile and produce berries and fruits on which his later creation—the birds—might feed. It may be noted here that whereas it is implied in the myth that Tane was the originator of all species of birds, the ones which are generally mentioned by the Maori in narration are those of economic importance to him.

In another version of the myth one Rehua is said to have been the origin of one species of bird, the *tui*, which lived in his hair and fed upon the vermin there. Here again, from other evidence, Rehua appears to represent the forest, his hair the branches of trees, and the vermin the fruits thereof.[1]

Besides the myths relating to the origin of birds the Maori also had various *korero purakau* concerning them, fireside tales like the German *Märchen*, which were told to amuse the folk in the communal house on long winter evenings. Such is the tale of the battle of the sea birds and the land birds, in which the characteristic cry of each species is imitated and accounted for by the particular part it played in the fray.[2] Again, the red feathers from the under-wing of the *kaka* were prized for the adorning of *taiaha*—the chief's stave—and we find a tale which narrates how this bird obtained them from the parakeet by deceitful practices.[3] But such tales do not concern us here, beyond showing that the interest of the Maori in the different kinds of birds was largely due to their economic value in his eyes, and that the importance which they possessed for him led him to shape folk-tales which embodied the salient characteristics of each species.

The real importance of the mythology of birds—its narration has definite bearing on the subject—is that it allows us to realize the place of birds in the cosmic scheme of the Maori, his idea of their relation to the forest in which they dwell, and the fact that, to him, they live under the direct care of Tane, the God of the Forest, who created them, watches over their interests and is their guardian and protector. Hence the caution of the fowler as he threads his way between the tree-trunks and among the ferns along the dark forest paths, lest by precaution neglected, in word or deed, he infringe upon the *tapu* of the *atua* whom no one would lightly anger. This conception of Tane, who is probably the most important among the gods of the old-time Maori, as tutelary deity of birds, must be borne in mind, for it is our clue to the explanation of the placatory rites and ceremonies which encrust the economic activities

[1] Best, "Maori Religion," p. 106.
[2] Best, *The Maori*, p. 180, vol. i.
[3] Best, *ibid.*, pp. 216–217, vol. i.

of the fowler at every turn, and bulk so largely in the various operations of snaring and handling birds.

BIRD-SNARING OPERATIONS.

The direction of affairs in the snaring of birds was generally assumed by the *tohunga*, the priestly expert, who as a rule did not confine himself to the business of fowling alone. He might be also magician and director in agriculture, fishing, war, ceremonies of religion, and occasions of marriage, birth, baptism and death, as well as doctor, architect, and carver besides. Before the season began, this man, who was wise in forest lore, decided from the many signs he saw in the bush—the ripeness of the berries on which the birds fed, the profusion of the *rata* flower, the time of its blossoming and the condition of the birds themselves—when the snaring should begin.

It may be noted in passing that in olden times birds were most strictly preserved. When they were nesting, or when the young were newly fledged and unable to fly, no person was allowed to take them unless under circumstances of extreme need. A *tapu* was set upon the forest, and no one would dare to break it without serious cause. Any infringement would be punished by the villagers in the form of a *taua*, a raiding party, which seized some of the offender's goods. If the *tapu* had been imposed with great strictness and ceremony then he might suffer in another manner, for the *atua*, the cæcodœmon who guarded the forest, might visit him or members of his family with sickness, in return for the desecration of his *tapu* by the slaying of birds. The net result was that an important portion of the food supply was conserved at a critical stage, and undue depletion prevented—all by calculated action. This fact is of interest in view of statements that primitive man has no forethought, no care for the morrow, and takes no trouble to ensure a supply of food for future use.[1]

But, relative to the material means at his command, the Maori, in common with other native races, took a great deal of care and trouble, and exercised much forethought, in attempting to provide for his future well-being. Having due regard to his culture status, his efforts to ensure continued satisfaction of his wants show considerable foresight.

The above-mentioned instance of abstinence, which could be paralleled by many other examples of similar tenor, suffices to show the general lack of knowledge of the native displayed in the broad statements just quoted.

The expert also ascertained that the *mauri*, the material magical talisman which guarded the *hau* of the forest, preserving its fertility and the abundance of its birds, was safe in its hiding-place and in good working order. He probably recited a *karakia* of appropriate kind over it, in order that it should be rendered efficacious during the coming season, and the work could be commenced in full confidence that the gods were exercising their protecting power. If, as was sometimes the case, a

[1] Bücher, C., *Industrial Evolution* (Eng. trans.), 1901, pp. 12, 17, etc. *Cf.* also Prof. C. Gide, *Principes d'Economie Politique*, 10me éd., 1906, p. 632.

new *mauri* were required it was erected with due ceremony. Since a certain sacredness always pertained to a forest, through its association with the gods and the performance from time to time of magical ceremonies relating to it, such *tapu* was always lifted prior to the birding season by the *tohunga*. Then the priest himself, or the chief man of the village, made it known that snaring would commence on a certain day in the near future, and all people then busied themselves in getting ready for the approaching tasks, in which everyone had his part.

The first operation was the preparation of the paraphernalia for the snaring. This was often done in a special building—termed by Tuhoe the *whare mata*—a house set apart for the manufacture, the repair and the storage of snares, bird-spears, traps, perches and other implements pertaining to the taking of birds, as also of fresh-water fish. The term was also used figuratively to denote all that pertained to the fowler's art; but whether a special house was erected or not, the same regulations were in force. Some days before the snaring began men repaired to the *whare*, last year's implements were lifted down and furbished up, new snare-cords were fitted—they lasted as a rule but one season, unless specially treated, when they might be used for two—and cordage of all kinds was prepared from the leaves of *harakeke* (Phormium tenax) and *ti* (Cordyline australis). This rolling, twining, and plaiting of fibre to form cord was a work largely performed by the old men. Like everything else there were customary methods of manufacture, found by experience to be efficacious, stamped with the seal of tradition and handed down from one generation to another as part of their economic lore. Such, for instance, was the rolling of the fibre with the palm of the hand on the bare brown thigh. Meanwhile, in the rest of the village great activity was toward. The boys and girls and some of the women were sent off to collect stores of firewood in order that the birds might be cooked and preserved after the snaring, a supply of good oven-stones, selected with care, was laid by in readiness for the cooking, and numbers of *hue* gourds were collected to serve as *taha*, receptacles to hold the birds when cooked. Strips of the inner bark of the *totara*, or occasionally of *hinau*, *miro*, or *tanekaha*, were also obtained for the same purpose, and by a simple process of heating, bending, tying, and luting the joints, neat and handy *patua*—rectangular containers—were speedily made. In all this work the slaves had their portion, being generally assigned the harder and more menial tasks. The *whare mata* and its inmates were under strict *tapu* while the fowlers were engaged in preparing their implements, and this restriction was not removed until the performance of a special ceremony after the first day's snaring, a rite which corresponds to the offering of the first-fruits. While this *tapu* was in force definite restrictions were imposed upon freedom of movement, the taking of food, and the satisfaction of sexual desires.[1] Neither cooked food nor women were allowed within the house, and no one might eat or live therein. The reason of the *tapu* was to ward off

[1] Best, "Maori Forest Lore," iii., *Trans. N.Z. Inst.*, 1909, vol. xlii, pp. 433, 445.

all polluting influences from the *whare* and its inmates, from the snares and other paraphernalia, lest their efficacy and the skill of the fowlers be injured. In addition to the prohibition of women from entering the house, a man could not have intercourse with his wife until the *tapu* had been lifted. If, as sometimes happened, this regulation was broken, it soon became known, for with the Maori, especially in such small communities, these things were always speedily found out; and then it would be the occasion for a *taua*, a plundering expedition which would strip the offender of all his goods. If a member of the community happened to meet with any accident or misfortune soon after the offence, then the mishap was at once attributed to the breaking of the *tapu* of the *whare mata*, and the *taua* was proportionately increased. The offending party in this instance would lose all his goods, and probably be speared in the arm or leg into the bargain, unless he happened to be fairly expert in the arts of self-defence. So that, apart from ill-success in fowling, there was another direct inducement to keep the *tapu* imposed at this season.

In addition to snares, ropes, and cordage, the preparation of new wooden implements was also a part of the work of the fowler. Here was opportunity for the exercise of the carver's ingenuity and skill. The amount of labour devoted to the construction of these simple things is surprising. The *mutu* or bird perches, with which we are mainly concerned, are ⊢ shaped pieces of wood, the purpose of which is to provide resting-places for the birds when they settle on the tree. A loop-snare has been previously arranged so that when a bird alights on a perch, the cord is pulled, the snare catches him around the legs, his feet are held fast, the perch is swiftly unhooked, and the bird is drawn down to the waiting fowler below. The care and ability displayed in the carving and ornamentation of some of these *mutu* is truly remarkable. Of several which I have in my possession one in particular is a model of fine workmanship. The upright portion is wrought into the semblance of a bird-headed man, with scrolls on shoulder and hip, and hands with four fingers clasped on the protruding stomach. As was common in Maori carving the sex has been plainly indicated, the figure having been provided with the male organs of generation. The *toretore* or knob at the end of the perch is graven into the likeness of a head with protruding tongue. The *mutu* has been bored to receive the cord, and on either side of the *toretore* are bound the *ngingita*, feather quills, under which the snare-loop is slipped, so that it is gently gripped and held in place against the swaying of the wind. The material is a hard wood which has taken a high polish, and the whole *mutu* has been beautifully finished. The carving, especially of the spirals, is of a very clean-cut character. It has been done, of course, with iron tools. But all this in days of old was done with small stone chisels, entailing an immense amount of time and labour—and this merely to adorn a simple implement of which the fowler would have many in his possession. The fine carving and infinite pains taken in the ornamentation of the perch were quite unnecessary from the strictly utilitarian and practical point of view. It does not seem to have been executed as an appeal to the æsthetic sense of

the birds, nor to have been essential to snaring, because other perches of a similar type, the *pewa*, were constructed simply from the branch of a tree, and were set up in the natural state with bark adhering. The reason for the expenditure of so much labour and trouble was evidently the innate desire of the brown craftsman to turn out work of good quality and neat finish, and to exhibit his skill in wood-carving and the expert handling of tools. He preferred to see what an English carpenter would call "a good job." In order to satisfy his craftsman's feelings, he was willing to spend many times the amount of labour necessary to produce the final economic result—the efficient snaring of birds.

Presumably the carving on the finer specimens of *mutu*, which took up so much time, was done not in the *whare mata* during the few days before snaring began, but in the course of a man's ordinary work, or in the spare time from his other occupations. He then, of course, observed only the ordinary carving regulations of *tapu*, and was not bound by the *tapu* of the *whare mata*, which would be extremely inconvenient if operative at all times.

It must be noted also that the carving of such objects as snaring-perches, and the ornamentation of a man's tools and implements, was never done for purposes of exchange. There was no direct inducement of motives of gain to lead a man to expend this extra labour.

The snaring of birds was a task that was properly a part of the labour of the men of the village, and generally the presence of women seems to have been regarded as destructive to the efficacy of the snares and the skill of the men who handled them. Sometimes, however, women seem to have taken part in the enterprise, and to have attended to the snares on certain trees. The names of *Kake-wahine* and *Piki-wahine* given to trees imply that they were managed by women during the birding season[1].

The people of the *kainga* generally proceeded to trap birds in families, each going to its own portion of bush where the special birding trees were located. But for simplicity let us follow an individual craftsman.

Our fowler, having provided himself with *mutu* (perches) and snares is now ready to set out. But he will not simply walk forth from his hut in the early morning, armed with the implements of his craft, and commence his work. The capture of the Children of Tane, the birds of the forest, is only attained by the observance of many rules of *tapu*, and the performance of the proper rites and ceremonies, dictated by prudence and a due respect for the powers of the forest and its fertility as a source of food to man. Our friend will make a very early start in the morning, so as to get to his snaring-tree before the birds assemble there to feed. Sometimes he will leave home before daylight, and dawn finds him squatting on his *papanui*, his platform, in the branches of a tree. But first of all he goes to the *tuapa*,[2] a

[1] Best, *ibid.*, p. 447.

[2] *Vide* Best, *ibid.*, pp. 443–445, for what immediately follows.

post set up in the ground and painted with red ochre, to act as a bringer of luck, and to ward off evil influences. There he performs a simple piece of ritual to dispel any ill-luck of an ordinary kind, and the virtue of the ceremony appears to lie in the spell and the accompanying rite rather than in the post itself. The fowler has brought thither his snares, his perches, and any other implements in his basket or in his hand. He then takes a green twig or branchlet, touches them with it, and throws it down at the base of the post. At the same time he recites this charm :—

> "Ill-luck and indolent desires lie ye here heaped up. Ward off ill-success—
> Cause man to acquire."

The native interpretation of this is interesting. Always in a village there are indolent persons who are too lazy and inert to go forth and snare birds for themselves, but who pass their time in thoughts of anticipation of the delights of feasting on the birds that will be caught by others. But such birds are still at large in the forest, and troubled and forewarned by the ideas of such people concerning them, may yet escape. These anticipatory thoughts, too, will have attached themselves to the implements to be employed, and may injure their efficiency. Hence, by touching the snares and perches with the twig and reciting the formula, the desires of the indolent are transferred from their object to the base of the *tuapa*, where they are rendered innocuous, being neutralized by the *tapu* of that post.

There are several words in the native tongue—*tumanako*, *toitoiokewa*, *tuhira*—which indicate this desire or mention of absent objects, which are still at liberty to escape, and by the Maori such desires, thoughts, and utterances are ever deemed unlucky.

A similar attitude of mind is shown in the following quotation from Best: "Some peculiar restrictions applied to bird snarers. These were not allowed while engaged at their craft to use certain words connected with it, lest the birds should hear them and leave the forest or refuse to enter a snare . . . . Among some northern tribes many common words were *tapu* to rat-trappers when plying their craft in the forest." (*The Maori*, i, p. 254.)

The fowler then proceeds on his way, confident that he has warded off the ill-effects of any possible envious desires. With him he carries food for his outing. But this may not be cooked food, for such is extremely destructive to the *tapu* of the forest; its virtue would be lost, its *mauri* would be *tamaoatia* (polluted), and the birds would disappear. Uncooked food alone, which does not have these disastrous effects, is allowed to pass through the forest in the birding season. As a rule he carries some raw fern-root, and when hungry cooks this with a bird or two and eats. Any remnant of the meal is, of course, not taken away, but left on the spot where it is cooked. In like manner he does not eat as he walks, or even standing, but sits down to his meal. There is no sense in risking the productivity of one's forest lands.

As our fowler threads his way among the trees to the place where he is going to set up his *mutu*, he may recite a *kaha* to himself, a charm to secure a good day's bag of birds. Every fowler had a little budget of these *karakia*, simple formulæ to bring him success, as had also the fisherman, the warrior, and every other craftsman. Also he keeps a sharp look out for *puhore*, evil omens which bring bad fortune. If he stubs the left foot against the root of a tree that is a *puhore*, a sign of ill-luck to come.

Each person had certain trees which belonged to him, and which had been known for generations as trees on which fowling was most likely to be successful. Many of these had names, showing that a special sentiment attached to them, and the owner alone had the right to take the birds thereon. No one, unless he wished to incur the penalties of trespass, would dream of infringing on the rights of anyone else and taking birds without permission from trees which did not belong to him. Our fowler then goes to one of his *tutu*—trees on which birds are caught by snaring on perches—and climbing up by means of a rough and very unsafe-looking vine-ladder, reaches his stage among the branches, forty, fifty, or more feet above the ground. Here he proceeds with the setting up of his *mutu*. This we will not discuss, as the technical processes involved do not concern us here. Suffice to say that his perches project outside the foliage, so that they are convenient settling places for the parrots that come to feed on the berries of the tree.

Our brown friend squats quiet and still, waiting for the approach of the elusive *kaka*, tense and motionless as the bird draws near the perch. He has four or five or more *mutu* in the branches around him, their cords trailing down within easy reach of his hands. If the birds are plentiful three or four may settle on his perches almost at once. Then in a moment he is changed from immobility to the embodiment of vigorous but skilful action. He operates with a trained quickness and ease; not a movement is thrown away, not a moment is lost, for the Children of Tane are swift to take fright, and any bungling now may spoil his chances of sport for some time to come. Grasping a trailing cord in each hand, thumb down, he swiftly jerks tight (*takiri*) the noose, thus imprisoning two birds by the legs, then putting a foot on each cord to hold them taut he has his hands free for the other cords, which he pulls tight in like manner. Still dealing with the last two he at once unhooks the crotch which suspends each perch in the tree, draws it down and releases the bird from the noose, killing it either by a bite at the back of the head or a blow from a *hau*, a short striking stick. He then turns his attention to the former pair, where the cord has been kept taut by standing on it, and treats them in the same manner. Even these simple striking sticks, I was informed by Paki of Ohaua, were sometimes carved, showing to what lengths the decorative genius of the Maori would go.

Such is the scene as it has been described to me. The capture of several birds simultaneously was fairly exciting, but can have been by no means rare, especially

in the olden days, when, as we know, a good fowler would bring home a bag of several hundred birds.

In all this the mental attitude of the fowler is very much as our own would be under similar circumstances. Anxiety to secure the birds blends with suspense lest after all they may, through timidity or a luckless slip of the hand, escape the noose. Hence we have had the recitation of the *kaha* to give skill and confidence to the fowler and an easy trusting disposition to the birds. Desire to obtain a good quantity of food for later consumption is mingled with the keen wish to exceed the catch of his rival in a nearby tree. If he is young he wants to display himself in the light of an expert craftsman to the rest of the people. Maybe he has the secret hope of securing the biggest catch of all, so that when in the evening the day's doings are discussed in the crowded communal meeting-house, with fullness of detail and gesture, with relation of every trifling incident, as is the Maori fashion, then will he hear with pride the mention of his name, the tally of his catch, the expert manner in which they were snared, and possibly receive some words of approbation from one of the old sages, a past-master in the fowler's craft. All these thoughts and ideas, inchoate or clearly formed, did cross from time to time the mind of the fowler as he operated his snaring-cords. And at intervals, I gathered from the narrators, all else was forgotten in the pure pleasure of the sport itself.

But he does not disregard the regulations of the *tapu*. He is careful in handling the birds not to let any loose feathers blow about, but throws them down at the base of the tree in which he is standing, where they are afterwards concealed. Feathers of birds were never left lying around in the forest or in the village, but were always carefully collected and buried. The native belief seems to have been that such feathers lying around, if seen by the birds, would cause them to forsake the forest. Old people would be very angry if they saw feathers strewn around in the village. Our man also watches that no blood from the birds smears his hands, as that would be detrimental to his skill. Such are his magical beliefs.

It is of interest here to digress for a moment and consider briefly the relation of magic to native industry. In itself it cannot be classed as economic, for despite the beliefs of the native it does not, from the rational standpoint, produce any direct effect upon the conditions of material welfare. Birds are not retained in the forest by spells, snares do not operate more smoothly when formulæ are muttered over them, and the effect of people's thoughts is not neutralized by the waving of a green twig. Can it be said, then, that magic has any definite relation to economic activity? What is our justification for including it in the facts under consideration? There is no doubt that it has some very important indirect effects in giving a psychological backing to the native when he is engaged in any task, in imbuing him with confidence in his own skill and with certainty that his ends can be attained by the proper exercise of it. In short, it provides him with that assurance which is essential to success in any undertaking. Again, in requiring the presence of the

people for ceremonial performances and by assigning to them allotted tasks therein, it promotes the organization and regulation of the labour power of the community, and is thus of great value. And finally, by the sacred character of magical ritual and formulæ, the native is impressed with the importance of his work, his attention is concentrated on the matter in hand, with resultant benefit of an economic kind.[1] On examination of the *karakia* and ritual of bird-snaring it is obvious that these psychological effects are secured, and that the magic of fowling must be regarded as an integral part of the economic activity.[2]

At the end of the day the catch is gathered up from the base of the tree and brought back, each man feeling pleased or cast down according as his bag is good or poor. There was quite a lot of rivalry among fowlers as to who would be most successful in the day's sport, and in olden days the name of a good snarer of birds was a thing to be desired. In this a young unmarried man would have a special incentive to industry, as his chances of obtaining a wife were greatly increased if he had the reputation of being a skilful man in the provision of food for the household.

The following story, recently related to me by Te Rake of Arawa, illustrates an old-time custom of the Maori. Though referring here to fishing, it was also practised by bird-snarers, as mentioned below, and shows the same play of motives as went on in that activity. For that reason it is included here.

Not so many years ago, when he was a youth, he went out one day on a fish-spearing expedition. A party of visitors had arrived and, in view of the fact that they were related to the people of Te Ngae, a special feast was prepared. Their hosts went off to the lake to secure fish. But Te Rake took spear and went up the Waiohewa stream to the fall by the Tikitere road. Owing to the proximity of a tribal *urupa*, or burying-ground, to the mouth of the stream a certain degree of *tapu* attached to the spot, and the fish had been undisturbed for a long time. In consequence they were very plentiful and of fine size, so that our friend had very good sport, and in a few hours obtained sufficient for his requirements. In fact he could not carry away all his catch, but had to leave some behind on the bank. He arrived at the *marae* (public square) of the village very pleased with his record catch, for the other people had returned from the lake with only a few each, and he looked forward to a hearty meal. But when the fish were cooked, his father, a chief of the old school, explained to him that it was a former custom of the Maori that a boy who went on his first fishing expedition and had the luck to make a fine haul did not partake

[1] I am indebted in demonstrating the function of magic in primitive economic performance to Dr. Bronislaw Malinowski, who has shown its importance in the work of the Trobriand Islanders of Melanesia (vide *Argonauts of the Western Pacific* (1922), pp. 59–60, 116, etc.); also an article on "Primitive Economics" by the same author (*Economic Journal*, March, 1921); and *Economic Aspect of the Intichiuma Ceremonies* in "Festskrift tillägnad Edvard Westermark," 1912.

[2] A detailed treatment of this problem of magic in relation to economics among the Maori is not possible here, but is being developed more fully in a chapter of a book on Maori Economics on which the writer is at present engaged.

thereof in the usual manner, but was content with only the scraps of the meal—the bones and what he could pick therefrom. The custom had partly a religious significance; the boy refrained from eating fully of his first catch as an act of recognition of the aid vouchsafed him by the gods. Furthermore, such abstinence showed that he was not a glutton and that he had not been thinking only of his own pleasure when he made the catch. A similar custom, said his father, was followed on the occasion of a boy's return from his first bird-spearing or snaring trip. Only the bones were his portion of the meal. The old man then quoted an ancient proverb of the people with reference to this latter idea, but my informant had forgotten it. However, his father desired that he would follow the old Maori custom on this occasion, and be content to refrain from eating fully of his catch; and, though it went much against the grain, Te Rake did so, receiving as his share the bones and the heads of the fish, from which he had to extract what morsels of flesh he could. But note the motives from which he did so. Fear and respect for the gods of Maoridom there certainly was not, but desire to prove that he was no glutton, and, stronger still, the wish to uphold the family pride before guests, constrained him, in spite of his longing for food and his shrinking from the ridicule of his brothers, to abstain from partaking of anything but the veriest scraps of the fruits of his labour. Such fasting, customary in fowling as in fishing, cannot be ascribed to any purely utilitarian motive, and reveals how the economic is continually bound up with other aspects of native life.

Not all men, of course, were expert in this art of bird-snaring. Some attained fame as warriors, others as cultivators of the *kumara*, others as fishermen of note, still others as fowlers and adepts at securing forest food. Again, it was not only for the provision of food for himself and his family that a man strove, but to secure supplies for the community, for persons did not as a rule keep to themselves the product of their labour. It served to feed the community. For their approval also he strove, because among the Maori public opinion always had, and still has, enormous weight.

The community, in fact, played a very important part in all phases of the activity of bird-snaring, as it did in other phenomena of economic life. And now the return of the fowlers provides another occasion for the entrance of the community upon the scenes. Let us first take the occasion of the initial day's snaring, since it illustrates the events most clearly.

At the end of this, the opening day's fowling, as the men of each family arrive with the bag, they are welcomed by the women of the village, arranged in some semblance of order on the *marae*, with waving branchlets of green in their hands but uttering no sound of greeting. The fowlers are still under *tapu*, so the usual welcoming cries are absent. Then a very curious piece of ritual is performed. A fire is kindled ceremonially, *i.e.*, by friction, not by a brand from another fire, and an incantation is repeated over it by the priest. The first-fruits of the birds of the

forest are then brought in. The priest takes the first bird snared. The feathers thereof and a piece of some edible herb are roasted at the fire. They are taken from the fire and the priest repeats over them the *taumaha karakia*, the incantation to cause birds to assemble in the forest, after which a ceremonial act is performed with the body of the first bird, which is offered to the gods—to Maru, to Tunui-a-ika, to Tane and others. A ritual feast follows, the priest eating birds cooked in one oven, the fowlers those from another, while the rest of the people partake of birds cooked in yet another oven. After this the ceremony is over and the *tapu* is lifted. The forest, the birds, the people, are now *noa*, or free from *tapu*. The season is open. People now set to work, some going bird-snaring, some beginning the preserving of birds. Now the fowlers may return to their wives and families and again enter the meeting-houses and mingle with the people, for they might do none of these things while *tapu*.[1] The belief in the power of cooked food as destructive to *tapu* is seen in this ceremonial feast, as also in the prohibition of the bearing of cooked food through the forest by fowlers or others. The eating or symbolical usage of ceremonially cooked food formed part of practically every *tapu*-lifting rite, such as that performed at the opening of a new carved house, at the conclusion of the first day's rat-trapping, fishing or fowling, to rid a tattooing expert (*tohunga-ta-moko*) of his *tapu*, to enable a chief who had cut his grandson's hair to mingle once more with his family.

So much for the first-fruits ceremony. In the ordinary way, said one of my informants, persons bring in their birds and lay them on the *marae*, the snaring of each family in a separate heap. Then all the people go round from heap to heap and appraise the bag, commenting on the number brought in by each *whanau*, the luck obtained, the skill displayed, the fatness of the birds and the toothsome morsels they would provide at a feast. If a family brings in a very small contribution then adverse comments are passed in plain language, and that family feels great shame therefor. The stigma remains until next year, when it is wiped off, if possible, by bringing in an extra large bag. Sometimes, if the snaring is for the purposes of a feast, the chief will pass a public comment on or censure a particularly small contribution, and this, too, is deeply felt.

For illustration take an analogous case which was recently told me. Among a *hapu* of the Arawa a collection was made on behalf of a certain Rua Kenana, the New Messiah and prophet of Maungapohatu. Bags of flour, provisions of all kinds, loaves of bread, were contributed freely—a large proportion of the loaves would be stale before they could be eaten; but no matter, it showed the *aroha* (the affection) of the people. The good things were laid on the *marae* in piles, each pile representing the contribution of a different family of the *hapu*. One section, however, had brought in a rather miserable offering, partly by misfortune and inability through lack of ready-money, but mainly through inertia and lack of enterprise.

[1] Best, *ibid.*, pp. 451–455.

Old Rangi-te-ao-rere, head chief of the *hapu*, in the speeches which followed the display of gifts, then publicly referred in very scathing terms to the small amount of provender brought in by them, and alluded to a *tupuna* (ancestor) of evil memory, from whom doubtless the strain of niggardliness had descended. His words were heard with great shame by the offending family, but no anger was felt towards the old man by those persons. His public rebuke was felt as a merited reproach. In fact they had come somewhat prepared for such words. But of course such a thing was remembered as a stigma on the family, and even now the memory of it has not passed. It is still an evil thing to mention the occurrence in the hearing of any member of that family, or to remind one of those people of it. In fact to do so purposely is an insult almost comparable to the use of the term *poriro* (bastard) in reference to his birth.

This shows the force exerted by public opinion among the Maori and how it functioned as a determinant of economic action.

When the piles of birds on the grass had been duly inspected, admired, and appraised, then the whole was ceremonially handed over by the *tohunga* to the chief, at whose disposal it lay. If a man of high rank was among the contributors then, said Kiri, he was allowed to withdraw the share which he had brought and to retain it for himself. If a visiting chief was present then the chief of the village might, as an act of hospitality, hand over all the catch to his guest. A Maori chief liked above all things to appear generous. Thus a chief in dividing up provisions might give all away to members of his *hapu*, keeping nothing for himself; this was the mark of a great chief.

In the usual way all the birds went into the common stock. No man retained for himself what he had snared, nor, when the birds were later apportioned at a feast or a *tangi*, did he necessarily consume what he had himself contributed.[1]

The bulk of the birds from the snaring are set aside for preserving. They are plucked and the bones removed, leaving the lower beak remaining with the flesh, for when the prepared birds of each person are counted it is by means of these beaks that the tally is made. A good deal of rivalry obtained among persons preparing birds as to who would show the greatest number plucked. The pigeon or *kaka* parrot, or whatever it may be, are then roasted before the fire and packed in calabashes, boiling fat being poured in over them to fill up the gourds and so seal them up in air-tight fashion. Birds so preserved are termed *huahua manu*, and are esteemed a great delicacy at a feast. Very often they will form the centre piece of the occasion. The calabash is provided with carved wooden legs, a carved mouthpiece (*tuki*) is lashed to the top, a small mat wrapped around, for decorative purposes, and the whole adorned with feathers of hawk or pigeon, which are hung in bunches from

[1] This was nearly always done as a matter of course—the sense of duty to the group and of identity with it was very well developed. But conflict of interests must have sometimes occurred.

legs and sides. Such a *taha huahua*—calabash of birds—is very much admired, and, as forming the principal item of a feast, was placed before important guests or presented to the chief persons of rank present.

Such is the completion of the cycle of the snaring of birds, their apportionment, preservation, and consumption. With this brief outline of the main characteristics of one type of economic undertaking among the Maori we are now in a position to understand more clearly what are the motives which underlie that activity, and the manner in which they interact to produce the phenomena of the production of material goods.

MOTIVES IN MAORI INDUSTRY.

As already noted in such an activity as bird-snaring one would expect to find the simplest conditions of the problem of motivation, since the undertaking has for its manifest aim a single end—the securing of a certain type of food. One might almost be excused, then, for presupposing that the operation of one motive alone—the desire to secure for oneself as many birds as possible with the least effort—would be sufficient to explain the whole. But though the psychological factors of the bird-snaring activity are of a simple nature when compared with those which underlie such an act as the ceremonial exchange of gifts, it is plain that even here in the simpler case we cannot assume the unhindered operation of this single motive-force. Even a cursory examination of the details of the processes given above reveals that we are dealing with a complexity of forces. Several motives are present, combining and interacting in such fashion that the native, even if he were a psychologist, would be hard put to it to discover exactly by what ideas his actions were prompted at certain moments. Our analysis will enable us to show in general terms, however, what are the factors involved.

In engaging in the arts of bird-snaring the evident and primary motive of the native is undoubtedly the provision of food. Man, as an animal, requires nourishment, and his instincts lead him to endeavour to obtain it. But, unlike the animal, both in savage and in civilized life, instincts are everywhere modified and conditioned by cultural factors. Hence we find that the "instinctive drive" for food finds expression in certain well-defined modes of procedure, of which, among the Maori, the art of bird-snaring is one. It is obvious that the desire to obtain as great a supply of birds as possible is the most prominent incentive in the undertaking.

Work of a practical nature (from our point of view), the choosing of a suitable tree, the selection of the particular kind of bait best calculated to attract, the setting-up of the snares, were plainly directed toward the attainment of this end. The Maori of old was endowed with an enormous amount of forest-lore of this kind. To speak for a moment of the art of fowling in general—he knew exactly the fruits and flowers which were favoured by the birds of each species, the type of tree in which they preferred to settle, the time of the year in which they were fattest, and the correct bait or lure to tempt them all. He knew that the pigeon was exceedingly fond

of the *miro* berries, which made it very thirsty, hence he made artificial water-troughs, set snares round the edge, and caught the unsuspecting bird in hundreds. He knew the curiosity of the *kaka* parrot, its brawling habits and delight in the sound of its own voice, hence he mimicked the cries of that bird and drew it down to his hiding-place. He knew the most efficient methods for securing birds according to the season, and he adapted his method, whether it were *here*, *mutu* or *pewa*, *wai tuhi*, *pae* or *tahei*, according to the particular ways and habits of each one of the feathered children of Tane.

Even in the *tumu* process which we have been describing there were four main types of *mutu*, each varying in the shape of the perch and the angle which it formed with the upright, the object being to locate snares in all parts of the tree, and so catch birds of all dispositions. One variety was adopted for placing in the topmost branchlets of the tree in order to accommodate the shy bird who shuns the ordinary perch of his more confiding brethren. All this vast body of empirical knowledge was directed to increasing, by as simple methods as possible, the available supply of food.

Sufficient has now been said to show the prominence of this "instinctive drive," expressed through definite cultural media, in prompting the native to any economic undertaking.

But, reviewing the series of events in the snaring, it is evident that the desire to secure food is never the sole motive behind the various phases of the undertaking. The influence, in the first place, of traditional and religious ideas is extremely powerful. In every native community the force of tradition is much stronger than among ourselves, and nearly all phases of an economic act are performed in a traditional mould. As a rule this traditional method of work is one that has grown up as the result of experience. Out of a kind of trial by error, the native, generation by generation, though always somewhat inhibited by existing customary behaviour, selects the methods which appear to be most advantageous in attaining a given end. These, handed down, as in the arts of bird-snaring, by personal tuition from father to son, are given the seal of traditional approval. With this is interwoven, too, the religious and magical side of economic performance, so that in carrying out any piece of work the native is quite definitely prompted by traditional and religious motives—the desire to act in conformity with what he has been taught as to practical methods, ritual, magical, and ceremonial observances. Sometimes these traditional forces are anti-utilitarian—they operate against what appears to be in the best interests of the native. Custom and belief compel him to spend much time in carefully gathering up all feathers, even stray ones, and burying them; often in the depths of the forest he casts away a bird as an offering to Maru or Tane, thus directly diminishing his economic store.

Another factor of account is the emulative impulse. In such phases of fowling as the actual snaring of the birds or the plucking of them before cooking, rivalry,

the impulse to show oneself to better advantage than other persons engaged in the same occupation, has been shown to be distinctly conducive to economic action. Closely allied to this impulse of emulation, and arising from the same instinct of self-display, is the desire to win the approval of others. This, in a Maori community, where every event, however small, is food for public discussion and the expression of public opinion, would be an obvious incentive to work. We have already mentioned its operation both directly, as regards winning a reputation as a snarer, and indirectly, in using that reputation to win a wife.

Arising out of this deference of the native to public opinion, there is the question of how far his motives to industry were determined by his conception of the community in which he lived and his relation to it. There is no doubt that among the Maori the sense of communal unity was very strong, and the claims of the group upon the individual were seldom denied. The manner in which the products of the industry of the individual were freely contributed to the communal store, in which communal labour was entered upon without consideration of exact equivalent to every person for labour performed, reveals not only the sense of duty which animated each man, but also the strength of the bonds which linked him to the group. On such an occasion as that described above, when the village engaged in fowling, the birds caught were deposited on the *marae*—the plaza or central square—and went into the common store. The forces of custom, tradition, and habit were so strong that to the native this appeared to be the only logical way of dealing with the birds, which were, as far as I can gather, usually handed in without demur. It is evident from this that to postulate for purposes of economic investigation the operation of the pure principle of self-interest would be not at all in accord with the facts of native life. In our scheme of economic motivation we must include as powerful incentives to action the sense of communal responsibility, and desire to contribute to the well-being of the group.

But some economists, sticklers for the traditions of the classical school, may yet argue: notwithstanding all this analysis of motives, we are still left with the one fact, that the Maori, in the type of industry described, desires only to obtain the greatest quantity of birds with the least effort and sacrifice. The existence of these other motives as the ultimate spurs to action is admitted; but all that is necessary for the economist to ascertain prior to his investigations is not why he desires them, but simply that he does desire them. But this attempted reduction of the motives for economic action to a minimum is quite inadequate, and definitely misleading. For if we proceed on this assumption that the Maori in all his industry is actuated solely by desire for material goods, it is obvious from the foregoing description that our final conclusions will be quite abstract and far removed from the realities of native life. In such case our attempt to solve some of the problems of primitive economics will be just as inept as it we postulated an economic savage and used him as the basis for *a priori* generalizations concerning the work and life of the native.

Truth requires that we shall take account of all ideas and incentives which assist in determining economic action, and a hypothetical simplicity of motive which lends a false ease to the problem must be discarded as being of no value.

That this simplification would be misleading, that our fowler is not animated by the lone desire of securing as many birds as possible, is obvious from the consideration of one further psychological factor in his work. In the *whare mata* and the precedent operations the skill of the craftsman in fashioning perches is carried to a degree far beyond that required for any economic purpose. What are the reasons which underlie this seemingly extra-economic action? The *mutu* thus shaped and ornamented are a gratification to the carver's pride, they evoke the admiration of other carvers and fowlers; but, still more, they provide opportunity for the exercise of talent, outlet for the innate tendency to activity. This last is a factor which leads most men, Maori as well as European, to take up some kind of occupation in their spare time. With the city man it is games, photography, numismatics, carpentry, or gardening; with the native it is posture-dancing, fashioning of ornaments, polishing of weapons or carving. Allied to this desire of work for its own sake is the wish, quite apart from emulative ideas, to produce something of quality, something which the craftsman feels to be in accord with his conception of himself and his powers.

Much of the smaller carving work of the Maori, the decoration of tools, implements, and weapons, was spare-time work, done from this desire for employment and this love for a well-finished article. As might be expected, this motive for action operates all through Maori industry. To mention just one other case, the manufacture of objects of greenstone. This was often undertaken by old men as a relief from the monotony of existence; the persistent rubbing, as Wohlers says, soothed their nerves and gave them occupation as they squatted in the sun in the porch of a house. The *mere*, the short weapon used by men of rank in hand-to-hand fighting, or as a badge of office, often bore a very high polish, the result of months or even years of work, for the stone is one of the hardest known to lapidaries. And this was very often a labour of love, for the polish of one's weapon was in no way an advantage in coping with one's opponent—unless perchance it dazzled his eyes! Heaphy records in the early days in New Zealand, that a native would often get up at night to have a polish at a favourite *mere*, or take one down to the beach and work away by the surf. Countless other instances might be adduced, but there is no need to labour the point. Among the Maori—as with ourselves—many tasks were undertaken for their own sake, simply for the interest in the work and the pleasure in doing it well. A friend of mine who has considerable mechanical skill has confessed that he has often been conscious of a feeling akin to disappointment when he has finished a particular piece of building; with its completion, the pleasure of planning out and executing the work was at an end. And an excellent instance of the absorption of the old Maori carver of former time in the work of his hands is seen in the behaviour of some old chiefs, who, having an appointment with Governor Grey,

arrived more than half an hour late. They excused themselves by saying that they had been busy with their carving-chisels, and the time had slipped by unnoticed,[1] a fact at which anyone knowing the carvers of the older generation will not be surprised. In every economic undertaking of the Maori the strictly practical and utilitarian motive does not always and everywhere dominate the whole. Allowance must always be made for what may be called pleasures of craftsmanship, a term which serves to include also the desire to perform work for its own sake.

CONCLUSION.

It will be well now to bring together in a brief statement the theoretical conclusions which have emerged in the course of this investigation.

It is evident, first of all, that there is a great necessity for an adequate examination of the psychological bases of primitive industry. Any careful research into the economic organization of a savage race can only be undertaken with full knowledge of the motives which actuate the native in his work, hence an investigation into economic psychology must be the preliminary to any study of primitive economics.

Economic activity is social activity. That aspect of native life which deals with securing material goods can never be completely isolated from the rest. As the description of the various phases of the work of bird-snaring has revealed, the economic is continually complicated by religious and magical ideas, it is performed in a traditional mould, and modified by facts of social organization and general culture. To obtain any clear perspective of primitive economics, any true conception of its nature, it must not be wrenched from its social setting.

Our specific study of Maori economic psychology shows the complexity of the motives which actuate the native in his economic life. The Maori is impelled to work first of all by the primary economic motive—the desire to secure more material goods for himself. But that is not all. The pleasure of craftsmanship, the feeling of emulation, the desire for public approval, the sense of duty towards the community, and the wish to contribute to the communal welfare, all these and more find outcome in economic action. As I have pointed out, these are not mere formal phrases, but represent concrete aims, hopes, and sentiments, in the mind of the native. The incentives to industry cannot be resolved into any one simple formula. The "desire to obtain material goods" is a totally inadequate definition of the complex motives which lie behind the interest of the native in his work. One of the first and most important points for the student of primitive economics to realize is the irreducibility of the psychological factors involved.

It is clear that self-interest alone is not the driving force in native industry, and that each man is also actuated to some degree by the wish to promote the welfare of the community of which he is a member. Our analysis of economic phenomena

[1] Robley, H. G., *Pounamu*, 1915, p. 29.

has plainly shown, in the facts already adduced, that no hypothesis of pure self-interest could be maintained by reason of the communal nature of Maori life, and the willingness with which the native surrendered his economic goods to the service of the group.

Magic has also been demonstrated to stand in definite relation to economic activity. In its function of organizing and regulating the labour power of the community, of concentrating by its sacred character the attention of the worker on his task, and by providing him with the requisite psychological backing which makes for success, it is invaluable to the completion of native industry. It is no mere excrescence on the practical domain of native life, to be removed by civilization with speed; it has a definite and valuable function in primitive economics, a fact which the average white man never realizes. This in itself is one more proof of the need for a fuller study of the psychology of native industries.

MAORI STORE-HOUSES OF TO-DAY.

[With Plates XXIX and XXX.]

By Raymond Firth, M.A.

Many of the old-time customs of the Maori of New Zealand have passed into oblivion, but traces of ancient habits still linger in certain departments of native life. As regards the storage of food and other property, old methods are still somewhat in vogue. A fairly exhaustive account of the construction and uses of various types of storage places in former times has been given by Mr. Elsdon Best, F.N.Z.Inst., foremost of Maori scholars, in Bulletin No. 5 of the Dominion Museum of New Zealand. About store-houses as an element in contemporary native culture, however, little has been said, and a few notes embodying the result of recent personal observation of some examples of store-houses still in existence to-day may be of interest to anthropologists. It is important to have some idea of their present structure and distribution—of the extent to which they are used by the modern Maori, and the modifications of structure due to *pakeha* influence. Several photographs have been included, because, though illustrations of the most ornate type of *pataka* with ample carving are plentiful enough, of the plain and therefore much more common type of store-house there are very few; of such everyday objects as *rua-kai* or food stores there are hardly any photographs in existence at all.

Pataka.

A survival of old native culture is still to be seen in some out-of-the-way districts in the shape of the *pataka*, or wooden store-house elevated on posts. In the little village of the Urewera country, reached by rugged mountain trails across bush-clad ranges, and still very much isolated from the civilization of the white man, the *pataka* is still quite a feature of the *kainga*. At Waikotikoti, the native settlement at Te Whaiti, there are seven of these structures altogether, of varying size and workmanship. Pl. XXIX, Fig. 1, shows the finest, belonging to Wharepapa Whatanui, the headman of the *hapu* (sub-tribe). Like all existing examples, it follows very closely the *pakeha* details of workmanship while preserving in essential the old Maori structural form. It is supported on six piles each about 3 feet high and tapered from the ground. On each pair of posts is laid a 20-inch adzed board of a couple of inches in thickness. The method of securing board to post is by means of a circular tenon and mortise—what would be termed *pakatitia*. Two holes of 3 inches diameter have been bored in the bed-plate and a corresponding tenon has been cut in the top of the pile. The floor

boards have been laid lengthwise on top of the bed-plates, which thus serve also as joists. The sides of the *pataka* are formed of very wide adzed timbers set horizontally edge to edge, and the joint covered as usual with a batten. The lowest plank on each side is quite a massive timber and presents a curious feature which is not mentioned by Best in his Bulletin, though he doubtless knew of the type of joint. This plank has been rabbeted out when worked to a depth of about 3 inches, leaving in the middle, on one side, a projecting tongue which rests on the ends of the bed-plates of the *pataka*, so helping materially to support the plank and hold it in place. This plank might be termed a T-board laid on one side. A sectional elevation (Fig. 1A) shows the method used.

This appears to be a purely Maori type of joint. An English carpenter, to serve the same purpose, would rabbet the plank out on the lower portion only and make the joint as shown in Fig. 1B.

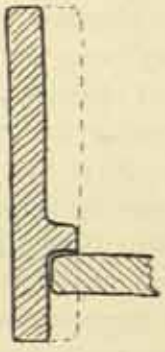


FIG. 1A.

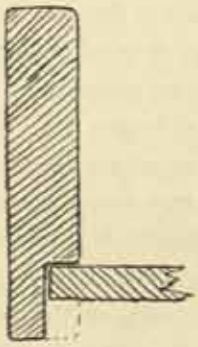


FIG. 1B.

The usage above mentioned is apparently an old one, derived from former times, as a *pataka*, described later, which has been built at least sixty years, revealed upon examination boards of the same type. For two reasons, then, it does not appear to be a European innovation; *pakeha* carpentry does not use it in building, and it is found in *pataka* of the older type. The reason for removing the wood on both sides of the tongue is not apparent—in fact, there seem to be two disadvantages in so doing. In the first place, it entails a great amount of labour with the adze in cutting out the surplus wood, and, secondly, by its removal the projecting tongue is left so much weaker than had the board been left solid. The only feasible reason appears to be to obtain lightness. Such at least is the opinion of an English builder.[1] Perhaps some of our scholars who are wise in the lore of the ancient Maori may yet be able to afford the explanation of this small but interesting point.

[1] Archdeacon H. W. Williams, in the *Polynesian Journal*, vol. v, p. 149, mentions a similar method in connection with the building of a Maori *whare whakairo* (carved house). The *maihi* (barge boards) had near the lower edge of the back a projecting rib "*papawai*," which rested against the foremost rafter. But I can find no mention of its use either for side planks or *pataka*.

The front wall of the *pataka* is constructed of planks set perpendicularly, the joints battened, and shows European influence in the large size of the door. Other civilized features are noted in the roof, the interior of which is made of match-lining, the outside being covered, as a convenient substitute for the *totara* or *manuka* bark of old, with that ubiquitous material, tarred felt. Shades of the craftsmen of old, who, with cunning brown hand and infinite patience, wrought an artistic creation: what think you, I wonder, of the labour-saving devices of your descendants . . . ?

But the carving of the store-house is really quite fine for a modern structure. It is possible, however, that it has been converted from some more ancient store-house (not at all an uncommon practice). The *maihi* (barge boards) show the usual *pakake* pattern, and the scrolls at the lower ends thereof are boldly executed, somewhat resembling those of the Fox *pataka* in the Auckland Museum, but without the detailed *tara-tara-o-kai* notched ornamentation. The join of the barge boards is covered by a *tekoteko* or figure-head of common style.

Instead of *paua* (Haliotis) shell in the eyes, the deficiency, if the writer remembers correctly, is atoned for by the plentiful bestowal of white paint. The *tau tiaki* or posts supporting the barge boards are carven into *wheku*, grotesque figures with heads turned awry. The *paepae*, or threshold of the verandah, is graven deeply, the *motif* in the centre being a conventional human figure. On either side is apparently a *manaia* figure of rather weak design and cramped in treatment, differing somewhat from the conventional *manaia* figure. Flanking these again, and directly beneath the *tau tiaki*, are two similar figures of larger size, three-fingered hands clasping out-curved and rounded bodies. These figures are separated by four double spirals of good workmanship, with the studs arranged throughout the field of the carving, and not grouped in radial lines as sometimes seen in work of poorer character. The *waewae*, or door jambs, are also carved. The *pataka* as a whole is painted a tasteful light yellow shade, while the carving is preserved by the usual covering of brilliant red. The name of this store-house was given as Te Hau-opu by Whatanui, who said it was used for storing harness and other gear.

A slight digression may be pardoned here. The name Te Hau-opu is of interest inasmuch as it gives an example of the ease with which the unsuspicious enquirer may misinterpret information which is supplied him by trustworthy informants. Knowing that carved store-houses were often assigned proper names on account of their distinction—a common Maori custom in regard to weapons, ornaments, houses and the like—the writer asked in the vernacular, "What is the name of this *pataka*?" and received the reply that it was called "Te Hau-opu." This was duly noted down as the particular name of that structure. Later a doubt arose. Another store-house in years long past had also borne that name, and there was a proverb in connection therewith.[1] It was possible, but curious, that two *pataka* far distant in

[1] *See* Best, *Journal of Polynesian Society*, vol. xxiii, p. 87.

time and place should both be called by that name. But when, months later, another informant gave the same name to yet another old store-house at Mataatua, explanation was demanded. Then it transpired that Hau-o-pu-a-nui is a generic term comprising store-houses used for keeping calabashes, implements and other valued gear, and is not now the proper name of any one hut at all. The use of the term may have arisen through an extension of the particular to the general, from the familiarity of the native with the old-time proverb and the oft-quoted name. But, as used to-day, it simply appears to indicate a type of store-house, not the name of any single structure.

This instance can probably be paralleled from the experience of nearly every ethnographer, and shows how easily the collector may put himself off the track—especially if he can lay claim to but a limited command of the language.

Most of the other *pataka* in the village were supported on four posts. An old one opposite the local store was made of split shingles or battens—a common material—and was remarkable for the curious *koruru* figure which surmounted it. Unfortunately, the photograph the writer took of this was unable to survive the rigours of packing over mountain trails, and, together with other camera plates, lies somewhere in the hidden recesses of the gorge of the Whakatane. Another store-house observed in the cultivations on the other bank of the Whirinaki was filled with onions, and contained also several large *kete* of the type commonly used for holding *kai* (food). We may note here that all *pataka* are frequently—by a misapprehension—termed kumara-stores. In former times by no means all were used for this purpose. Those of finer workmanship, adorned with much carving, would never be used for storing food, but would hold fishing or bird-snaring implements, weapons and other gear, besides personal property of a more intimate kind.

Only the plain and roughly finished *pataka* were utilized for food stores. The last example mentioned was one of this kind. It had pieces of tin nailed round the four posts at a height of about 18 inches from the ground to keep out rats—in fact, this seemed to be the most common preventive employed throughout the Tuhoe country, and is mentioned by Best as being in use some years ago. But, however valuable the device when the tin was new and slippery, its efficacy is much open to doubt after a year or two's exposure, as in most cases it has become very rusty, and would offer but little difficulty in the way of foothold to any but the most sluggish rodent. Another device to serve the same purpose consists of a hollowed-out log placed concave side downwards on the top of the posts. In olden times a disused canoe was often cut up and utilized in this manner. A modern substitute is the circular milk dish so common in country districts, which is inverted on top of the post between it and the bed-plate in the same way. The whole object, of course, is to prevent the rat from climbing the post and gnawing its way through the floor of the store-house to the food within.

The above-mentioned *pataka* was constructed of split shingles. The front bed-plate was a slab about 15 inches wide, adzed to shape; both bed-plates were fitted on to the piles with circular mortise and tenon.

Another store-house of *pakeha* affinities was painted a roseate pink, and in place of a *tekoteko* displayed a wooden triangle of a reddish hue, suggesting to the casual observer the infiltration of a culture element from the Y.M.C.A.

At Ruatahana, on a hill at the back of Omakoi, an old *pataka* of interesting workmanship was examined. As it was obviously of great age, it is worth giving an account of its dimensions and construction. Pl. XXIX, Fig. 2, gives a photograph of it.

The superstructure rests on four piles 4 feet high, each pair bearing a 2-feet wide *totara* slab laid crosswise (*i.e.* at right angles to the major axis of the store-house). On these, as joists, five other slabs are laid lengthwise to form the floor. The *paepae*, or door sill, is laid across again, and upon this rests the lower end of the front slab. One broad slab alone composes the whole front of the *pataka*, and out of it the rectangular doorway, 16 inches wide by 2 feet 6 inches in height, has been cut. The flooring projects in front about 3 feet, as does also the roof, to form a verandah or porch. The side planks, two of each, are laid horizontally on edge, and the lower one in each case has been rabbeted out to leave a projecting tongue, as in the case of Te Hau-opu at Te Whaiti. All modern *pataka* are fastened together with nails, but in this example this function is performed by flax lashings (except as regards the roof), which give some indication of its age. Most of these lashings still remain, though a few have rotted away. The mode of joining the side planks illustrates the old Maori method: holes having been bored in the two slabs, a batten is laid over the joint and lashings passed around. These lashings have been firmly secured by driving pointed wedges 3 inches long (*titi*) into the holes through which they are passed.

These elevated store-houses did not always possess a ridge-pole. This one has such a feature, and the *heke* or rafters butt on to it and the upper edge of the side planks. The *pataka* is 12 feet long over all and 8 feet wide. The height of the side walls (outer) is 3 feet 4 inches and the eaves of the shingle roof overhang about a foot. The *pataka* gives evidence of having been at one time partially painted with *kokowai* (red ochre), of which traces alone now remain. The *tekoteko* has evidently been removed. The *maihi* (barge boards) were not carved, and, though removed, lie close by on the ground. The roof is of shingles, and the intersection at the peak is covered by a ridging-board shaped like an inverted trough.

In the *pataka* we found several fragments of flax cord, also a *taha* (calabash) of the days of yore, covered with a flax *kete*. The structure itself had last held maize. It must have been built between sixty and eighty years ago at a minimum, as an old woman of the district, whose years are close on the allotted span, remembers its presence there when she was a child.

Various other *pataka* were observed at the different settlements in the vale of Ruatahuna, while Nga-putahi, a small *kainga* on the Okahu stream, possessed one of recent construction.[1] At Mataatua, among several examples, a store-house of undoubted age was noted, with a well-carved *tekoteko*. A storage hut, photographed in 1917, was much lower than usual, being only about 18 inches from the ground. The four supporting posts were only about 3 inches square, and the two bed-plates laid from ground to rear were not planks, but merely 2-inch battens. No carvings embellished this *pataka*. A point noted in this and other cases was that though flax lashings had been abandoned in favour of nails, yet battens were still laid to lap the joints of side-planks front and rear. These were nailed in position, one instance of the retention of the native constructional form, but the use of European implements in attaining that end. The method of overlapping weather-boarding universally employed by European settlers for the outer walls of houses and other buildings does not seem to be in favour with these natives. The roof in this case was capped by a trough-shaped ridge-board. A proper door frame had been constructed.

A good example of a *pataka* is at Ohau-a-te-rangi, a *kainga* (village) on the Whakatane river, about eight miles below Mataatua. The structure was termed *pu-kiore*, which is simply a generic name for the type of store-house designed to keep out rats (*pu*—prevent or hinder; *kiore*—a rat).

My friend Paki of that village tells me that the store-house has no particular name. Various parts of the structure were designated by Waewae Te Kotahitanga, the aged *rangatira* of the settlement, in the following terms, which it is interesting to compare with the nomenclature in use in other districts. The *tau tiaki* are the slabs supporting the *maihi* or barge boards. The outer threshold of the *pataka* is the *paepae kai ewha*, while the door sill is the *paepae poto*. The supporting piles are simply *pou*, while the *tauwhenua* are the bed-plates or joists.

All these are terms of common use in other districts. The floor planks old Waewae called *whariki*, a name usually applied to the floor mats of fine texture, of which quite a number were seen at Ohaua. The use of the term for the floor itself may be a mistake, or may simply be an extension of the meaning from mat to that which it covers. The sides were termed *paitara* or *papatarewa* and the roof *peirana* (I have my suspicions about that word *peirana*), while the *tuarona* was the back of the *pataka*. The door was called by the usual name of *tatau*. The end rafters were termed *heke ripi* and the front battens lapping the interstices of the vertical slabs *tumata huki*. There does not appear to be any specific name for the holes made for passing the flax lashing through. These were simply termed *puahu*, the ordinary name for an orifice of any kind. The pointed wedges to hold the lashings in place were *titi*. Here, again, piles and bed-plates were connected with circular mortise and tenon (*titi*). This *pataka* was stored with a variety of gear, some of a very interesting

[1] Another stood beside the track at Te Onini, some small distance along the Waikaremoana trail.

character. One item is worth mentioning. While squatting inside, taking stock of the contents, the writer saw what he imagined to be a coil of rope and asked its purpose. He then found it was *tororī*, native-cured tobacco, in a two-strand twist about an inch thick, hung up on the wall in a big flat brown coil for all the world like a hank of manila cordage. The old ladies of those districts are still very partial to it, though to the *pakeha* smoker who may have it offered him it should be said, "Beware; it is as a trap for the unwary."

Slabs of *wheki*, tree-fern (*Dicksonia fibrosa*) are sometimes used to build *pataka*. At Parae-roa, above Nga-mahanga, stands one thus constructed, while another of similar material is to be seen at Waikare-whenua, a deserted settlement on the Waikare stream, some 10 miles below Ohaua. Crowning a mound above the river at this forsaken hamlet is a group of huts, one being a *pataka* of split timber, with bed-plates of concave shape to prevent the access of rats to the interior. The *whare* in this group are all surmounted by turned finials on the gables in place of *tekoteko*. The *pataka* contained a few relics of former days—a *mutu kaka* or parrot-snare of common type, a stone *patu* for beating flax for the making of garments, and the wooden haft for an adze, with leather and flax lashing. In a *whare* at Parae-roa there was a similar wooden haft fitted with a carpenter's plane-iron instead of the old Maori adze blade.[1]

Pl. XXIX, Fig. 3, is a photograph taken at Taupo, a village on the coast near the head of Okahu-moko Bay, Whangaroa, and shows a *pataka* of modern construction in shape like a corn-crib. This example is of a very European type, as shown by the large door and iron roof. Entrance to it is obtained by means of a log with notches cut in it, which is a survival of the old Maori *arawhata* or ladder.

Pl. XXX, Fig. 1, gives a view in natural setting of a *pataka* on the shore of Papaitonga Lake, Horowhenua. This has replaced the old store-house "Te Takinga" which, once the property of Sir Walter Buller, is now in the Dominion Museum and is figured in *Maori Art*, p. 143. Pl. XXX, Fig. 2, shows the details of this *pataka*, which is a type of the modern European class of structure to be found in many back-country districts. The only points worthy of note in this example are the two front *pou* or supporting piles, which are well carved into the semblance of conventionalized human figures with the *rape* spiral on the hips. When the writer saw it this *pataka* was stuffed with hay.

A word as to present-day distribution and use of *pataka* in districts where the writer's observations have extended. Sufficient examples have already been given to show that such elevated store-houses are in common use throughout the Urewera country. Some well-carved specimens, existing mainly for the edification of the tourist, are to be seen at Rotorua in the settlements of Ohinemutu and Whakarewarewa. Though common in the *kainga* of the Waikato twenty years ago, they are rapidly disappearing to-day, but further south in the remote districts of the King

[1] There is a specimen of this type in the Museum at Auckland.

country they are still a characteristic feature. Some of the native villages west of Taupo, around Tokaanu and Tongariro, as, for example, the settlement of Otokou, possess half-a-dozen of them, stored with gear. Indeed, so useful has this style of store-house proved to be that European settlers in some back-blocks districts have adopted it to prevent the depredations of rats and to keep goods free from damp. For instance, at the soldier settlement of Ngaroma, quite a few *pataka* have been built of recent years. In one case the local school teacher slept in such a store-house, thereby transgressing all the canons of ancient Maori observance by associating himself with a storage place for food. Truly, as the Maori says, the *pakeha* is a person devoid of *tapu*! As civilization draws closer, however, the Maori abandons the ways of his forefathers. In native settlements near towns that the writer has visited in the Wellington district, such as Te Oriori, near Masterton, and the village at Otaki, no *pataka* are to be seen, though occasional ones exist in *kainga* further back in the hills. Inquiry from the East Cape and Cape Runaway district shows that they are rarely used there, my informant knowing of only one in the several villages in that vicinity with which he is acquainted. In the far North, however, they seem to be fairly plentiful, and around Kaitaia much use is still made of them for storing farm implements and other gear.

WHATA.

The *whata* is an open staging, elevated on posts, to preserve food, etc., from damp, but topped by a platform alone in place of the hut of the *pataka*. *Whata* vary much in form. They are not yet a thing of the past, though my notes on these and *rua-kai* (subterranean food stores) show them to be less common than *pataka*.

While on a yachting trip on the North Auckland coast in 1922 we had occasion to make the secluded and rock-guarded harbour of Tutukaka. About half a mile inland in the bush stood a Maori *whare* (house) newly made of *raupo*, and within a few yards stood a typical *whata*. It was a rectangular staging some 5 feet high, formed of untrimmed poles, the same being used for the platform. Matting, plaited from *raupo*, ran in a strip 2 feet wide round the edge of the stage, and helped to retain a store of newly-dug potatoes, which were covered with bundles of *raupo* and tops of the *riwai*.

It may be noted here that the Maoris of the North still say that the proper method of storing *kumara* is in the ground, while potatoes should be disposed high up so that the air may circulate round them. Hence they are often put into baskets and hung from the ridge-pole of a shed. By this means the natural flavour and sweetness of the tuber is retained. Maize, a favourite crop of the natives, is generally stored in cribs nowadays. In the Urewera a *pataka* is sometimes used for this purpose, but I have seen cobs hung in bundles on a rough *whata* erected in the branches of a tree.

RUA-KAI.

The semi-underground *rua* or storage chamber is in common use to this day in many Maori villages. On the edge of the cultivations at Te Whaiti, by the side of the Whirinaki river, are to be seen quite a number of these structures. Others exist at Ohaua and other Tuhoe settlements. The photograph (Pl. XXX, Fig. 3) is of interest inasmuch as it depicts a very common type which is but rarely figured. Neither Best in Bulletin 5, nor Hamilton in *Maori Art*, has such a photograph. For a detailed description of *rua-kai*, I would refer readers to Mr. Best's excellent Bulletin mentioned above. Here a few notes only are permitted.

The example shown in the photograph has a ridge-pole supported on two uprights, and against this sloping timbers are laid as rafters. Boards roughly hewn to shape form the front, while a door is fitted on hinges. The introduction of *pakeha* notions regarding honesty has evidently necessitated the use of a padlock. The chamber is roofed with slabs of *punui*, a tree fern (*Dicksonia fibrosa*), and inverted trough-shaped slabs of the same material are laid in overlapping fashion along the ridge-pole to turn off water. This fern-trunk is also practically rat-proof. Earth is heaped around the sides. The interior is partitioned with a few battens and filled with potatoes laid in dry bracken. Another of similar construction was roofed with *totara* bark.

A type of bottle-necked subterranean *rua-kai* quite common in olden days seems at the present time to have gone quite out of use. They may still be seen in unoccupied *pa* or forts. In the long-deserted Korekore *pa* in the Waitakerei district of the North quite a few of these chambers are still to be found[1]; there are a large number of them in an old fort some few miles along the coast south of the Waikato Heads towards the Kawa stream; and still others remain as vestiges of the large population which once existed in the district around Matamata.

An interesting survival in the manner of storing *kumara* is to be observed in native settlements quite close to the city of Auckland. On paying a visit to Pukaki, a *kainga* on a sea-arm of the Manukau, some few months ago, the writer saw several *rua kumara* on the eastward slope of a hill. As a woman was busy taking some tubers out of one he approached to watch. The method of storing is as follows: A circular hole of 2 feet 6 inches or so in diameter, and of an equal depth, is dug, and the bottom and sides lined with dry *rarauhe* (bracken—*Pteris aquilina*). In this are laid the *kumara*. Then more *rarauhe* is placed on top, and finally a mound of earth is heaped over all and carefully smoothed to turn off all rain. To take tubers out for cooking a hole is made in the side of the mound large enough to admit the hand, which is inserted and the *kumara* withdrawn. The hole is not filled in, but a tin—often a disused milk-pan—is put over the opening to prevent rain from soaking in. Tubers may thus be removed at any time without disturbing the earth covering. Such *rua* are often made on the crown of an eastward slope of a hill.

[1] For description and measurements of these see article by the present writer on this ancient fort, *Journal of Polynesian Society*, 1925, vol. xxxiv, pp. 8–11.

The above notes, albeit of a very fragmentary nature, may serve to show that the Maori still preserves in a modified form some of his details of ancient culture. They indicate also to what extent the old technical processes of the native have become affected by European ideas and methods. As a matter of fact, the use of storage places of old type appears to be one of the culture forms which has survived most widely among the Maori, and the extent of its survival is probably due to this reason—that the Maori *pataka*, *whata* and the like are still of use in the changed environment. Being in no way inferior to the European shed for keeping out damp and rats, they have been retained when other culture elements have been long since abandoned.

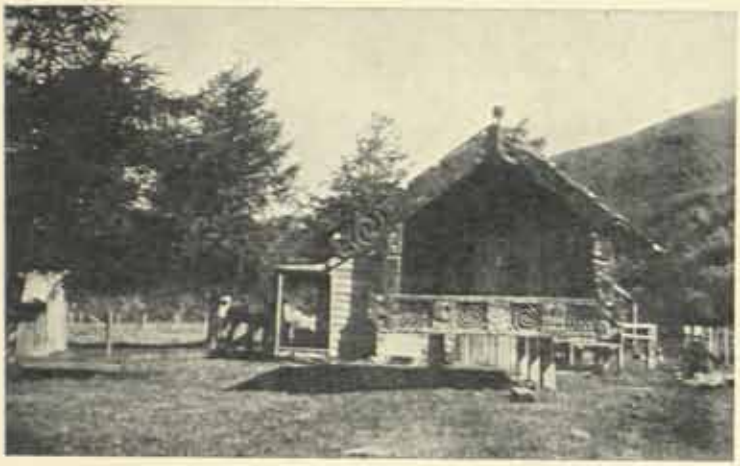


FIG. 1.—PATAKA AT TE WHAITI.



[*R. A. Falla, photo.*

FIG. 2.—OLD PATAKA AT OMAKOI.



FIG. 3.—PATAKA OF MODERN STYLE AT TAUPO, WHANGAROA.

MAORI STORE-HOUSES OF TO-DAY.



FIG. 1.—PATAKA OF MODERN DESIGN, ON SHORES OF LAKE PAPAITONGA, IN NATURAL SETTING.



FIG. 2.—PATAKA OF MODERN DESIGN WITH FRONT SUPPORTS CARVED.

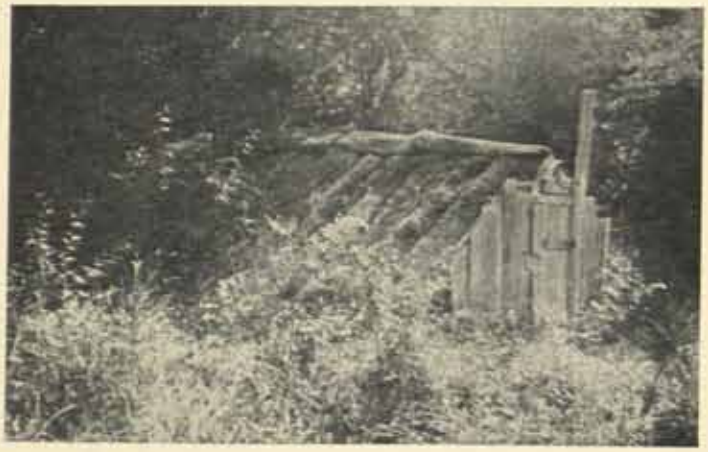


FIG. 3.—RUA-KAI (POTATO STORE-PIT).

MAORI STORE-HOUSES OF TO-DAY.

NOTES ON THE ANCESTRAL CULT CEREMONIES OF THE EƔĀP, CENTRAL CAMEROONS.

[With Plate XXXI.]

By L. W. G. Malcolm.

The following account of ceremonies in connection with the ancestral cult of the Eɣāp is taken from notes made at Bagam[1], in the grassland area of Central Cameroons. As far as was possible full notes were taken at each ceremony, and material assistance was afforded both by my interpreter, *Nde ta mfoñ*, and the head-chief, *Pufoñ*, the latter giving me every facility to witness the various ceremonies.

These were held between the months of July and December in 1917, and they were all performed in connection with the ancestral cult of the Eɣāp tribe.

Some time previous to the first ceremony the townspeople cleared the various ceremonial places, and the head-chief's attendants prepared the sacred instruments (*ñgōñ*).

To the north of the head-chief's quarters there is a very large cleared space, which, in addition to being the market place, is an assembly ground for the townspeople. (Fig. 1.) In the centre of this cleared space (*izāñ foñ*) there is an artificial mound (*ke kuño izāñ*) on which the sacred instruments are played during the various ceremonies.

On practically every day between the months of July and December, 1917, there was some performance on or near this mound.

The attendant (*te ndāp ñgōñ*) in charge of the sacred instruments hut (*ndāp ñgōñ*) prepared all the sacred instruments by cleaning them with palm-oil and camwood powder (*pii*). These include the flanged iron double-bell (*tuo ñkop*), a hide shield to which is attached a number of small iron bells, the various drums, the marimba, and a small handled iron ring, to the periphery of which a number of small iron bells are attached (*taap*). Other attendants were responsible for looking after the five-stringed pluriarc (*sū*) and the elephant-tusk horn (*ntāñ*).

In all the ceremonies witnessed the head-chief of the Eɣāp took the principal part. Not only is he the head-chief, but he is also the chief priest. There are no priests as such in the Bagam area. On no occasion was his authority delegated to any other person. He was assisted by his attendants, of whom there are two grades. The chief or senior attendants (*mpforṣei*, pl. *ñkoño mpforṣei*) were always in immediate attendance, and acted as his advisers. The other attendants (*cuo foñ*, pl. *ñkoño cuo foñ*) assisted during the ceremonies in various ways, such as preparing the grounds and

[1] Formerly in the Bamenda Division, British Cameroons.

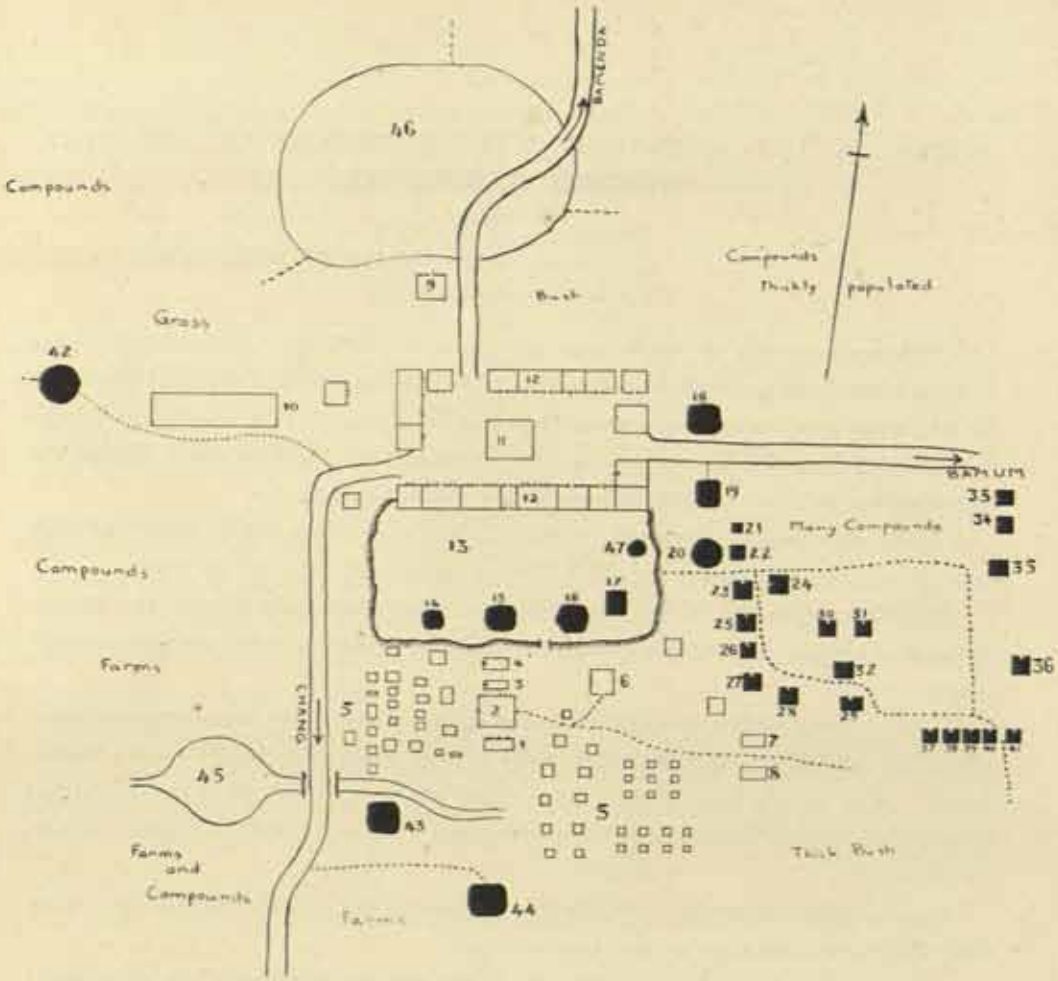


FIG. 1.—DIAGRAMMATIC SKETCH SHOWING THE PRINCIPAL BUILDINGS AND CEREMONIAL PLACES IN BAGAM, CENTRAL CAMEROONS.

Explanation.

1–2. Head-chief's dwellings (*ndāp foñ*).
3. Attendants' hut (*ndāp cuo foñ*).
4. Head-chief's brother's hut.
5. Women's huts (*ndāp mīāgwi foñ*).
6. Sacred-instrument hut (*ndāp ñgòñ*).
7–8. Workmen's huts.
9. Head-chief's trading hut.
10. Native court.
11. European rest hut.
12. Carrier's huts.
13. *Izīñ foñ.*
14. *Izāñ ñgàñ or izāñ ŋā.*
15. *Ke Kuño izāñ.*
16. *Pɯ.*
17. *Faa ndāp.*
18. *Izāñ tebbi.*
19. *Fuwo mesere.*
20. *Izāñ zepoñ.*
21. *Ndāp Mbomvei.*
22. Burial-hut of *Mfiri Mbomvei.*
23–32, 37–41. Burial-huts of former head-chiefs.
33. Burial-hut of *Foñ otuñ.*
34. Burial-hut of *Foñ Kūa.*
35. Burial-hut of *Cu ato foñ.*
36. Burial-hut of *Finzi menop.*
42. *Sū ñkwāñ.*
43. *Ndòp.*
44. *Izīñ pfuñ pfiñ.*
45. Main water supply.
46. Market place.
47. Place where the women congregate to greet the head-chief on his return from the *zepoñ* ceremonies.

the materials used in them. In continual attendance on the head-chief there was always one or more boy-attendants (*moñ ko foñ*) who ran any messages required.

A very old man of the tribe accompanied the head-chief as a remembrancer, and sat down by his side throughout the various ceremonies, giving advice when necessary.

The underlying idea of all the ceremonies seen was the supplication of the ghosts of the former head-chiefs and people of the *Eγāp* tribe to assist in making the town "catch plenty chop," and for the women to "catch pickins." From first to last this idea of increasing the material welfare of the town was predominant with all the people taking part in the ceremonies.

Palm-wine (*yuu*) was used very freely in most of them, and I endeavoured to ascertain its particular significance, but without success. The head-chief informed me that the reason that the blood and liver of the slaughtered goats was used for offerings at the burial-huts of the former head-chiefs was that the ghosts preferred these as food.

How far these ceremonies were made reciprocal with those of other towns is not quite clear. On one occasion I saw visitors from another tribe at one of the *zepoñ* ceremonies at the burial-hut of *Mbomvei*. Visitors from quite a number of other tribes took part in the *sū* ceremony. On more than one occasion it was noticed that parties of the Eγāp left the town to take part in similar ceremonies in other towns.

During the migration of the Eγāp from their original habitat at *Kū Eγāp*, or the mountain of the eastern side of the Nun River, the remains of all the former head-chiefs were transported to the site where the present town of Bati is situated. Here they were reinterred, and when the tribe conquered the small tribes on Bali-Bagam escarpment they migrated thence and exhumed the remains again, later on burying them in their present burial-huts in the town of Bagam. (Fig. 1.) Some, however, were not located, and consequently the number of burial-huts in Bagam is not complete. The head-chief informed me that there were records of twenty head-chiefs who had ruled over the Eγāp, the first of whom was *Mbomvei*, or creator, and the last *Foñ o tuñ* or *Te tuñ*. In all cases, so I was informed, the descent was either from father to son, or else through the eldest brother in the event of there being no son.

The following are the names of the various ceremonies witnessed and the dates on which they were held :—

1. *Zepoñ*	July–August, 1917.
2. *Sū* (1)	3rd October, 1917.
3. *Ndurro*	3rd October, 1917.
4. *Sū* (2)	11th October, 1917.
5. *Mbā ñgωōñ* (music)	15th October, 1917.
6. *Mωo pūo* (in the market-place)	19th October, 1917.

7. *Nzo ñgōñ* .. .. 20th October, 1917.
8. *Sū ñgōñ* (1) .. .. 22nd October, 1917.
9. *Sū foñ mbeivi* .. .. 23rd October, 1917.
10. *Mɔo pūo* (departure) .. .. 24th October, 1917.
11. *Sū ñgōñ* (2) .. .. 25th October, 1917.
12. *Ñgāñ* (attendants) .. .. 26th October, 1917.
13. *Ñgāñ* .. .. 27th–28th October, 1917.
14. *Ndōp* .. .. 11th December, 1917.

My duties in the Bagam area did not permit me to attend all the *zepoñ* ceremonies, but I attended all the others, and wherever it was possible took full notes. On many occasions when I endeavoured to ascertain the meaning of a certain rite it was found that it was not clear to the Eγāp themselves. This practice of performing a ceremony in which the exact meaning is obscured has been referred to by Ankermann and Hutter when they describe the religion of the neighbouring Bali. It was not found that the information was withheld, for in all my relations with the Eγāp I found that they were quite willing to give me any information I asked for. It was simply because they themselves have lost the meaning of certain of the ceremonies which they perform. I have consulted all the available literature concerning the Bagam area and can find no reference to the ceremonies which are described in the present paper. Concerning the Bali a certain amount of literature is available, but there is no detailed account of their ceremonies. The head-chief of the Eγāp informed me that as far as he was aware he did not know of any European who had studied the ancestral cult of his tribe.

Zepoñ. (July–August, 1917.)

The ceremony of visiting the burial-huts of the former head-chiefs is called *mɔa sie*, and the whole proceeding is known as the *zepoñ*. About five days before the first burial-hut is visited the head-chief plays on a large cylindrical drum with one skin head (*maa kaa nzāñ*) in the cleared space (*izāñ foñ*) to the north of his quarters. The playing lasts about three hours, during which time the flanged iron double-bell (*tuo ñkop*) is also played. On this day the head-chief does not make any change in his attire. On the succeeding four days the drum is beaten by one or other of the head-chief's near male relatives. The first notification of the coming ceremonies was on *yee nte*, or the second day of the week. In the *zepoñ* ceremonies the first burial-hut to be visited was that of the present head-chief's father (*Foñ o tuñ* or *Te tuñ*) and the last that of *Mbomvei* or the first known head-chief of the Eγāp. On the day of visiting the *zepoñ* the head-chief, after bathing, attired himself in a coarse body-cloth and sleeveless gown (*ndze foñ*). His cap (*cuo foñ*) was of native-made

linen and was coloured a deep red by reason of the many applications of camwood powder (*pii*) that it had received. Over his left shoulder he carried a small square string bag. The ceremony at each burial-hut was the same, with the exception of the last one, of which details will be given. I was unable to attend more than three of the *zepoñ* ceremonies, but the head-chief assured me that the procedure was the same at all the burial-huts.

After being prepared, the head-chief left his quarters for the first ceremony. He was preceded by one of his attendants who played on the pluriarc (*su*), and another who played on the head-chief's elephant-tusk horn (*ntāñ*). Following the head-chief were his other attendants. The procession passed through the *izāñ foñ*, and then along a path in the bush until a cleared space (*izāñ Mbomvei*) was reached. (Fig. 1.) Here were a number of the older men of the town, who saluted the head-chief as he passed. Not far from this cleared space was a rough mat fence (*kañ*), made from strips of raphia palm, which enclosed the first burial-hut to be visited. Only the head-chief and his attendants were allowed to enter the enclosure. After his arrival a number of his wives, who had followed the procession from his quarters, sat down outside. They all carried small branches or bunches of leaves, which they swung as they walked.

The head-chief and his attendants were met at the entrance by two or three attendants who were looking after the instruments and foodstuffs which were to be used in the ceremony. The hut was of the usual Grassland type, being constructed from raphia-palm branches with a pyramidal grass-thatched roof. The doorway faced west, and when we entered the enclosure it was open. On the left of the door was a small three-legged wooden stool (*dzuñ*). After the salutations had been given by the attendants in charge of the hut, the head-chief sat down on the stool. For a minute or so there was complete silence, and then the head-chief enquired of one of his attendants (an *mpfor sei*) if everything was in order for the ceremony ("*Mɷa naa ndzi, akū?*"). The reply was that all was in order ("*akū*"). The same question was asked a second time, and when the head-chief had been satisfied he said "Good" ("*Apū!*"). He was then handed a small gourd containing camwood powder (*pii*), and each man in the enclosure was given some in the palms of his hands. This was rubbed on their bodies or placed inside their caps. The head-chief then rubbed a little on his own arms, saying as he did so, "Father! I rub this powder on for you" ("*Ta mɷo ndōñ pii pɷo*"). As this was being done all the men said "*Mbīe.*" The head-chief then rose from his stool and entered the hut, followed by two of his attendants. Inside were two men, one of whom was the regular hut attendant. In the south-eastern corner of the hut was the grave (*sie*), which was covered by two inverted calabash bowls, one on top of the other. One of the attendants removed the top one (*ntōñ*), which was slightly the smaller of the two, and over the other one some green leaves were spread. The head-chief was then handed a kid, which he grasped by the two forelegs. One of the attendants grasped the two hind legs and stretched

the animal's body out. The head-chief then cut its throat over the grave and the blood was allowed to flow through a hole in the bowl which led to a vertical clay pipe. This pipe (*pii sic*) led down to the top of the head of the dead head-chief, who was buried in a sitting position in a chair. As the blood was flowing the head-chief said, "Father! This kid is for you" (*Ta! Mfe moñ mve*"). The body of the kid was then dismembered and eviscerated very roughly. The liver (*piĕ*) was cut out and sliced into small pieces, which were mixed with palm-oil. The mixture was then placed in the vertical pipe by the head-chief, who said as he did so, "Father! This is your own food. I pray that you will look after the welfare of the town." A calabash of palm-wine was then poured into the hole and sprinkled about the pots. As this was being done the head-chief said, "Father! This is drink for you." The palm-wine, before being poured out, had been heated in a large earthenware bowl over a fire in the hut. The inverted pot was then smeared over with palm-oil and the smaller one was replaced. From baskets in one of the corners of the hut the head-chief was handed some boiled koko-yams. These baskets were of various sizes, the largest one belonging to the head-chief's mother. Some of the koko-yams were handed to the attendants, who squeezed the skins off and worked the vegetable up to a paste in their hands. The mixture was then handed to the head-chief, who worked it up himself. He then divided it into small portions, which he placed about the two inverted pots. As he did so, he said, "Father! I give this food to you." As on other occasions, the attendants responded, "*Mbīe.*" Dried fish (barbel) were then taken from the bags and handed to each of the attendants, who crushed them to a powder in their hands. This was then handed to the head-chief, who sprinkled it over the small heaps of koko-yams. As this was being done a request was made that the women of the town should be made to bear more children. A fire was then made in the centre of the hut between three fire-stones. A large earthenware pot was adjusted on the top of them and two of the attendants poured in several calabashes of palm-wine. The head-chief then said, "Chief! This is your own" ("*Foñ! Kɔɔ mɔɔ iyo*"), and he sprinkled the baskets all over with camwood powder, after which they were taken outside by the attendants. A little camwood powder was placed inside each basket before it was taken outside the hut. One of the attendants poured a little palm-wine over the head-chief's hands to wash them. To signify to his dead father that the ceremony inside the hut was over, the head-chief placed his finger on the small inverted pot over the pipe. The whole party, with the exception of the regular hut attendant (*ñgā ndāp*), then left the hut, closing the door behind them. The head-chief sat down on the stool on the left of the doorway and directed that the palm-wine, which was being heated inside the hut, should be distributed to all the men in the enclosure.

Lying on the ground at the right of the doorway was a small ring (*sic*) made from twisted strands of the rind of the raphia palm. A similar ring was hanging from a peg over the doorway. This was taken down by the head-chief and placed on the

top of the one lying on the ground. A kid was then handed to him, and holding it over these rings he cut its throat, the blood pouring inside them. The body of the kid was handed to an attendant, and the head-chief was given some camwood powder, which he sprinkled over the rings. The kid's body was then handed back to him and was dismembered in a very rough manner. Rather more care was taken in removing the viscera. The head-chief then placed both the rings on the peg over the doorway. An attendant carefully removed the fæces from the viscera and handed them to the head-chief, who threw them on to the wall between the rings. This part of the ceremony was performed in complete silence.

An attendant handed the head-chief a single-handed flanged iron bell (*ñkū ndōp*), which he beat with a small stick (*pωo*) outside the closed door of the burial-hut. As this was being done all the people called out. The head-chief then took a small whistle (*ncei*) made from the tip of a goat's horn and blew it twice before the door. At the second time of whistling the door opened slightly and the head-chief threw the entrails of the kid inside. The remainder of the flesh was hung up on the mat enclosure. The head-chief was then handed two small string bags much stained by camwood powder. These were similar to the one that he was already carrying In one of them was the stick used to beat the double iron bell, and in the other was the goat's-horn whistle.

The sacred instruments (*ñgōñ*) were lying in one corner of the enclosure covered by a large mat. I was informed that included in this collection were all the sacred instruments of the former head-chiefs. At a given signal the covering was removed and all the men in the enclosure took up an instrument. They then ranged themselves in a circle in preparation for a dance. The head-chief carried an iron double-bell. (Pl. XXXI, Fig. 2.) He was followed by two drummers and an attendant who had his elephant-tusk horn (*ntāñ*). The rest of the circle was made up of attendants who carried iron double-bells. In the centre of the circle was a man who had a peculiar instrument consisting of an iron wheel with a short handle at right-angles to it, whilst to the periphery a number of small iron bells were attached. This instrument (*taap*) was shaken vigorously during the dance. The head-chief gave the signal for the dance to start by tapping his instrument three times very slowly. The players revolved in an anti-clockwise direction with a simple movement of their feet. Short side-steps were taken, the right foot being drawn up sharply to the left. The players performed on their instruments with all their might, and yelled as loudly as possible as they danced. Outside the enclosure, at the place where all the head-chief's women were assembled, another dance began as well. The women swung the twigs and small branches of leaves as they moved or danced in a somewhat aimless manner. They all made shrill calls as they did so. The player of the pluriarc sang as he played during this dance. This man did not enter the enclosure with the head-chief, but remained outside with the women. The dance inside the enclosure lasted about three minutes, and then stopped suddenly. The players sat down, the head-chief

returning to his three-legged stool. I was told that this dance was performed in order to let the former head-chiefs know that the welfare of the tribe was still in the hands of the present head-chief. All the sacred instruments which had been used in the dance were then laid in a row by the attendants, and the head-chief sprinkled camwood powder over them, after which they were placed inside the burial-hut. The personal bag and the instrument used by the head-chief were given to an attendant, who took them to the head-chief's quarters.

The flesh of the slaughtered kids was then placed on plantain leaves in front of the head-chief, who cut it into very small portions. The head and feet were thrown into the burial-hut. Any flesh that was left over was given to the attendants. The head-chief then gave a signal to one of his attendants, who summoned the women outside the enclosure to come in one at a time. The head-chief remained seated, and as each woman came before him she was given a piece of the meat from the plantain leaves. They received it in a crouching position, and as they retired, still facing the head-chief, they squeezed the meat very tightly in the palms of their hands. The head-chief told me that this meat was given to the women in order to make them conceive. Only the principal women of the head-chief's household received this gift. Some of them were very old, amongst them being the wives of the previous head-chief. The meat was taken by them to their own huts, where it was cooked and eaten without any further ceremony.

After the women had been attended to, sixteen old men brought in calabashes of palm-wine, which they laid in a row in front of the head-chief, after which they retired. Each attendant in the enclosure partook of this liquid; some drank it from the hollowed palms of their hands, and some from horn drinking-cups. Some of the palm-wine was then sent to the townspeople who were assembled at the *izãñ Mbomvei*. (Fig. 1.) Every man who participated in this ceremony was supposed to partake of the palm-wine and to take to his hut a portion of the flesh of the slaughtered animals, and as I had been a spectator of the ceremony the head-chief sent to my quarters a calabash of palm-wine and some of the flesh. After this distribution was over one of the attendants handed a gourd containing camwood powder to the head-chief, who poured some of it on to his hands and rubbed some on his forehead. All the attendants in the enclosure then came up to the head-chief, who gave each man a portion in his hands. This was either rubbed on their bodies or placed inside their caps, which were then replaced on their heads. The head-chief's sons and boy attendants then came into the enclosure one by one, and some of the powder was rubbed on their foreheads by the head-chief. A few of the women were treated in a similar manner. This concluded the ceremony inside the enclosure. After adjusting the bag over his shoulder the head-chief rose from his stool and a procession was formed. Preceded by the players of the pluriarc, the elephant-tusk horn and an iron double-bell, and followed by his attendants, he walked slowly to the *izãñ foñ*. As he passed, a number of women who were standing in the north-east corner greeted him with shrill cries

(*yuedi*). The procession moved to a hut which was situated in the extreme south-east corner of the ground. This is the burial-hut of an attendant (*cuo foñ*), and the duty of his ghost is to attend to the wants of the ghosts of the former head-chiefs of the Eγāp. The head-chief, attended by two of his attendants (*mpforsei*), entered the burial-hut (*faa ndāp*), and from a calabash poured palm-wine over the grave, which was in the south-west corner of the hut. As he did so the head-chief said, "Head-chief's attendant! This is palm-wine for you." Then a handful of camwood powder was sprinkled over the calabash pots inverted over the grave. As on previous occasions, whenever the head-chief addressed the ghost, the attendants responded, "*Mbīe.*" The head-chief then left the hut and returned to his own quarters, accompanied by all his attendants.

The ceremony at the burial-hut of *Mbomvei*, or the last one to be visited, was somewhat different from all the others. Instead of a kid a sheep was slaughtered. Above the doorway of this hut two spears with iron heads were attached. These were said to have belonged to *Mbomvei*, and were held in great reverence. After the *pañ* dance they were taken down by the head-chief, and as he did this all the men in the enclosure blew on small whistles made from the tips of goats' horns. The head-chief then rushed to the *izāñ foñ*, closely followed by his attendants, who were all armed with spears. After a brief display of mimic warfare the whole party returned to the burial-hut (*ndāp Mbomvei*). The head-chief sat down on a stool near the entrance of the hut and there was complete silence for a couple of minutes. Suddenly, and without any warning, all the men broke out into the song of victory [1] (*Wə́-ə́-ə́-ə́-ə́*) and chanted for several minutes. Then followed another display of mimic warfare inside the enclosure. Several men would rush out into the middle of the ring, and posture, shaking their spears in all directions. From time to time men would run out to each other from opposite sides of the ring and clash their sword-knives together. Some of them postured in a variety of absurd positions in front of the head-chief, who remained seated all the time, with his eyes averted from the dance and taking no notice whatever of the proceedings. After about five minutes he suddenly clapped his hands, and when silence was obtained he made a speech. He told me afterwards that he said that there was to be no stealing in the town, no murder or adultery, and that all the townspeople were to obey the orders of the Administration. After this speech the head-chief cut up the carcase of the sheep; on former occasions this operation had been performed by one or other of the

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[1]



attendants. Corn beer (*ntāñ*) was then brought in a buffalo-horn cup and handed to the head-chief, who, before drinking it, poured a little out on the ground. Old men then brought in calabashes of palm-wine; they were followed by various tradespeople, who brought samples of their workmanship. In a short time there was a very large heap of miscellaneous objects stored up in front of the hut. Part of these goods were given to the visitors by the head-chief, and some to the attendants. Before this distribution took place a portion of the flesh of the sheep and some of the foodstuffs brought were placed inside the burial-hut. This concluded the ceremony at this place and, as before, a procession was formed and a final visit was paid to the *faa ndāp*. There were no further ceremonies in connection with the *zepoñ*. In the intervening time, until the *sū* ceremony was performed, the head-chief and his attendants were busy in making preparations for it.

Sū. (3rd October, 1917.)

On the evening of the 1st of October several of the head-chief's attendants went through the streets of the town and proclaimed the coming *Sū* ceremony. Each man carried an iron double-bell (*tuo ñkop*), which he tapped at frequent intervals. The whole of the town area was traversed by these men in order that everyone should know of the coming event. Throughout the day-time of the 2nd of October the head-chief's women were engaged in clearing and sweeping the *izāñ foñ*. On the morning of the 3rd certain attendants spread large cloths of Munchi manufacture over the place where the head-chief was to sit. A very large carved wooden chair (*dzuñ foñ*) was placed in the centre of these cloths, and on each side of it were two small carved wooden stools. Immediately before the ceremony began certain personal articles belonging to the head-chief were brought out and placed in position behind his chair.

During the morning there was a constant influx of men from neighbouring tribes who were to participate in the ceremony. They all went to the hut (*ndāp ñgōñ*) where the sacred instruments were kept, and here they left their costumes until the time of the ceremony. The market was held during the morning, so that by midday all the townspeople were in the vicinity of the *izāñ foñ*. (Fig. 1.) Soon after the sun had reached its meridian the head-chief and his attendants prepared themselves for the ceremony. The principal dress of the head-chief was the body cloth, which was made from a very large piece of Munchi cloth. It was suspended by a body-cord being passed between the legs with the ends allowed to hang free both in front and at the back. By arranging the folds the whole dress was made to represent a kilt with the ends hanging just below the knees. This dress (*ndze su*) is very heavy, as it is manufactured from very thick and coarse native cotton. Each of the senior attendants (*pmforsei*) wore a somewhat similar dress. The upper part of the body was unclothed, and the skin was streaked with kaolin (*mbūp*) and yellow ochre (*fuu ñgōñ*) stripes alternately. They radiated fanwise upward from the umbilicus.

The face was streaked with the same materials. The head-chief wore an ornate headdress (*maa kûañ*) which consisted of a string skull cap to which a great mass of split cocks' and crows' feathers were attached. In addition a number of red feathers were inserted. The head-chief and his attendants carried horse-tail whisks, the handles being ornamented by bead work, and the head-chief also wore an ivory armlet (*ntsō*) on his left wrist.

Soon after the ground had been prepared by the attendants in the morning four men were put on duty as guards. One of these had placed a talisman against rain (*mbā*) on one of the pieces of Munchi cloth. It consisted of a wild tomato, which was placed on the tip of a spear. The upper part was cut off and a portion of chewed kola nut was placed on it. To one of the barbs of the spear a section of a kola nut was attached.

About ten minutes before the head-chief made his appearance several of his attendants came to the *izāñ foñ* carrying certain personal belongings (*mɷo me sip*).

By two o'clock there was an enormous crowd of people around *izāñ foñ*, and the market place was now practically deserted. People who had come to trade were included amongst the spectators. The attendants with the sacred instruments (*ñgōñ*) now began to play on the mound already referred to. Groups of men from the four corners of the *izāñ foñ* ran about the ground and made mimic warfare with each other. They made challenging gestures to the crowd and behaved generally in a warlike manner. Sometimes two or more men would run half-way across the ground flourishing their sword-knives. They would meet a party from the opposite side and clash their weapons together, jumping into the air as they did so. Others flourished their spears and made motions as of throwing them. As they ran to and fro they chanted their war-song. This play continued for some minutes, until a group of men appeared from the direction of the hut where the sacred instruments are kept. (Fig. 1.) It would be very difficult to attempt to describe in detail the various costumes worn. Some wore a coarse bag garment (*ndze sū*) which covered the entire body as well as the head. The face-piece had two small eyeholes cut into it. Others wore a coarse garment with a detachable head covering. Several men had leopard skins suspended from their shoulders with the tail trailing on the ground. One man had a carved wooden mask resembling a buffalo's head ; this (*so*) was held in position as the man danced solemnly round the perimeter of the ground. On his ankles he wore rattles (Pl. XXXI, Fig. 3) of dried pods (*ndāñ*), which made a great noise as he danced.

While these people were engaged in dancing in all directions over the ground the head-chief made his appearance. Immediately all the dancers rushed in the direction of the sacred instrument house. After the head-chief had seated himself in the chair his attendants ranged themselves at his back ; his pipe-bearer was stationed on his left. As soon as he had sat down the entire assemblage broke out into a chant.

This appears to be a fairly common one in the area, as it was heard in other towns. There are no words, but a repetition of the syllables *W-ə̀-ə̀-ə̀-ə̀-ə̀-ə̀;* chanted in ascending and descending cadence. As a rule excellent time is kept when this is being chanted. A number of the head-chief's women, who were attired in small loin-cloths and well covered with camwood powder, now made their appearance and took up a position on the left, but well to the rear. A very large number of men appeared from the eastern side of the *izāñ foñ*, all of them clad in a variety of costumes, some of which have just been described. It was noted that a couple of them wore scarlet tunics which had formerly belonged to English volunteer units. The head-chief informed me that these had been purchased from German traders.

As this group of men came on to the *izāñ foñ* they assumed a peculiar strutting walk and made peculiar motions with their bodies. As they approached the head-chief he smoked his ceremonial brass pipe (*kuup pañ*). This was prepared for him by a boy attendant. The party, after approaching the head-chief, retired and a number of armed men in the north-east corner rushed down. As they ran they flourished their spears and chanted the usual chorus. They saluted the head-chief by holding their spears in their right hands high above their heads, shaking them vigorously as they did so. They then ran back to their corner and the same procedure was followed by groups of armed men in the north-west, south-west, and south-east corners in turn. Mounted horsemen then appeared on the eastern side and, galloping up to the head-chief, pulled their horses on their haunches. As they approached they flourished their spears in their right hands above their heads. It is more than probable that this custom has been introduced from the Fulani in the north, as this is quite a common practice of theirs. Another reason for supposing this is that Bagam is not a country where the horse is to be found except in a chief's stable. All the horses are purchased from the Fulani in North Adamawa. After the horsemen had retired, the head-chief's mother made her appearance and was given the small stool on the right of the head-chief to sit on. She was attired in a small scarlet public cloth, bead anklets (*se kɔii*) and a small skull-cap which was ornamented with cowry shells. This was the only occasion in which any woman took anything like a prominent part in any of the ceremonies in Bagam.

After she had seated herself, all the dancers and armed men rushed into the centre of the ground chanting their usual chorus. Many flint-lock guns were fired and there was a general display of mimic warfare. The representatives from the other towns then came up to salute the head-chief in turn, after which they joined in the general dance. As they approached the head-chief everybody assumed the peculiar strut to which reference has already been made. After the last representative had come up the head-chief rose from his seat to take part in the ceremony. As he did so he was greeted with the war-chant from the men and a shrill cry (*yuedi*) from the women. With very short steps he danced round the perimeter in an anti-clockwise direction, making his way round in a continuous diagonal, as if he was making a serrated edge

round the circle. As he danced he flourished a horsetail whisk (Pl. XXXI, Fig. 1) up and down. He was followed by his attendants, next by his mother, and then by his women. Many of the men were carrying horsetail whisks, while the women carried small branches of leaves which they flourished as they danced.

On reaching his seat, the head-chief sat down. A man with an artificial horn (*tωo pe*) moved around the edge of the space covered by the Munchi cloths and played his instrument continuously. This horn was made from strips of raphia palm and covered with cloth. It was ornamented very elaborately with cowry shells, and in shape represented a cornucopia. After a short rest the head-chief repeated his dance, and when he had resumed his seat calabashes of palm-wine were brought to him. All the men in attendance came up in turn and were given a little of the liquid to drink. Most of them had horn cups in their bags, but a few drank from the palms of their hands. The player of the artificial horn received his portion in the instrument and drank through the mouthpiece.

The armed men then approached the head-chief from each corner as before, and when the last group had retired to the south-east corner he rose and returned to his quarters accompanied by his attendants. The whole ceremony lasted about one hour. During the whole time the sacred instruments were played on the mound.[1]

Ndurro. (3rd October, 1917.)

About ten minutes after the head-chief had left the ground he reappeared clothed in his everyday garb. His attendants had also changed their clothing. In his left hand he carried a calabash rattle (*ntse*) containing maize. Two drums began to play as he appeared, and then all the people present joined in the *Ndurro* dance. It was very confused, and consisted mainly of the taking of a few short steps then a halt and a calling out. The din made was very great. On the outskirts the women who were looking on swayed their bodies with a slight sideways movement and shuffled with their feet. This dance lasted about half an hour, after which the head-chief returned to his quarters followed by his attendants and women. The crowd also dispersed, and some of the boy attendants cleared the place where the head-chief had been sitting during the *sū* ceremony and took all the effects away.

Sū (*2nd performance*). (11th October, 1917.)

After the ceremony held on the 3rd of October the sacred instruments were played each day and night in the *izāñ foñ* for a week. On the 11th of October, which was the next market day, the ceremony which had been held on the previous week was repeated in practically the same manner as before. The Eγāp have an eight-day week, and the market day is held on *yee ñkωpi*, or the last.

[1] The head-chief informed me that the ceremony had somewhat the same meaning as the Hausa *sadaka*.

Mbā Ñgɷoñ. (15th October, 1917.)

About midnight on the evening of the 15th of October sounds were heard as of a fife band playing in the streets. Early next morning it was heard again, and I saw it playing outside the head-chief's compound. Several men were playing on short bambu flutes (*mbi keike*) of various sizes. They were blown transversely across the end and were without finger-holes. Each instrument had a different pitch, and as the men in the band (*ncei foñ*) played one after the other the effect was that of a continual descending scale. The players danced in time to the music with a to-and-fro movement in single line. The man on the right of the line had no instrument, but carried a calabash pot which contained leaves in a liquid. On his left were two drummers carrying the drums (*maa ñkāa*) and *pfuño*. Then came the flute players.[1] Each of the men had some camwood powder daubed on his chest. Every morning and evening for eight days this band played in front of the head-chief's quarters. Occasionally the head-chief paid them a visit, but never made any remarks. The players in this particular band all came from the same *pfi*, or group of compounds, on the outskirts of the town, and they were under the orders of their own *tera pfi*, or leader. This man (*Tankɷo fɷo ñgɷāñ*) received his orders from the head-chief concerning the time when the playing should begin. On 19th October, at the time of the ceremony called *mbā ñgɷoñ*, another set of players made their appearance outside the head-chief's compound. Most of them were playing on antelopes' horns. As they played they danced in a somewhat similar manner to the other band (*ncei foñ*). They sang a song also, the purport of which was that they had come to salute the head-chief. At certain pauses the onlookers responded by calling out "*Mbīe*." Most of the players had horse-tail whisks, which they swished to and fro as they danced. A few of the men had whisks made from grass (*ñku kuñ*). Throughout all the ceremonies the use of the horse-tail whisk was very noticeable. If the actual tail was not used then artificial ones were made from branches or grass. In one of the ceremonies the head-chief used a whisk which had an ornate copper handle. I made enquiries about it and was informed that it had been taken in a fight from a tribe many years before the Eɣāp crossed the river Nun. I was never able to get the exact significance of these whisks; perhaps the explanation will come from Northern Adamawa, where horses are bred in great numbers. If the Bamenda Division was a horse country perhaps some explanation would be forthcoming, but all the horses are purchased from the Fulani. The head-chief of Bagam told me that in the early days a number of whisks were obtained from tribes in the Banyo and Tibati districts. After a certain amount of difficulty I persuaded the head-chief to let me have one of these whisks. (Pl. XXXI, Fig. 1.) Great importance was attached to their use, and the head-chief kept several in his own quarters.

On the afternoon of the 18th of October, which was the Bagam market day, the *ncei foñ* and the *mɷo pūo*, as well as the *ñgōñ*, paid a visit to the market-place

[1] A corresponding ceremony is called *adzū* by the Bamum.

(*puu γāu ntsee tuñ*) playing as they left the *izāñ foñ*. About four o'clock they all returned to this ground, where a number of the townspeople engaged in a general dance. The players of the various bands performed on their instruments until late in the night. There appeared to be no particular method in the dancing, each person dancing as he or she thought fit.

Nzo ñgōñ. (20th October, 1917.)

The ground on which this ceremony was performed was to the south of the head-chief's quarters over the creek. (Fig. 1.) It was prepared and cleared beforehand by some of the head-chief's attendants and women. The space cleared was about forty feet square and was in the midst of cultivated land, with a border of trees on the eastern side. About two o'clock in the afternoon the head-chief sent a messenger to me to say that the time had come for this ceremony. Preceded by the men playing the elephant-tusk horn and an iron double-bell, the head-chief proceeded to the ground, followed by his attendants and several of the townspeople. At the ground (*izāñ pfuñ pfiñ*) a great number of people were sitting around the sides of the cleared space. At the north-western corner a white flag (*me puo*) and two spears were stuck into the ground. The head-chief informed me this signified that there was no trouble in the town. On the northern side there was an enclosure (*ñkyet*) of rough matting made from strips of raphia palm. Outside the entrance of it the head-chief sat down on a chair for a few minutes.

Accompanied by some of his attendants he then went inside, where he changed his everyday clothes for a very large body-cloth of native manufacture (*ndze nzo ñgōñ*). It was practically the same as the one he wore in the *sū* ceremony, with the exception that this one was edged with red cloth. He also donned a large feather headdress (*maa kíañ*). After he was dressed the head-chief sat down on a three-legged stool on the south-east corner of the enclosure, and one of his attendants approached him in a crouching position. This man was told to go outside and inform the assembled people that they were to let the head-chief know if they had any trouble. They were also told that they were to obey all his orders, and that they were not to quarrel with people from other towns. The women were enjoined to work hard on the farms and to look after their children. After he had given these instructions the attendant returned to the head-chief. A calabash of palm-wine was then handed to the head-chief, who gave some of it to each of his attendants, who all approached him in a crouching position. No drinking-cups were used, as in former ceremonies, and each man drank from the palms of his hands. A number of grass bags containing palm and kola-nuts were then handed to the head-chief, who distributed a handful of mixed nuts to each man, who received them in a crouching position.

There was a stick (*me kuñ*) in one corner surmounted by a crown-like structure which was decorated with a large number or cowry shells. With a sudden movement the head-chief seized it and danced round the enclosure, holding it in his right hand.

The attendants then, in a chorus, warned the people outside that the head-chief was about to appear before them. Preceded by two attendants who carried long leaves (*mɷɔda*)[1] he proceeded to the south side of the ground. Here there was a stick[2] (*tso*) sunk into the ground, and at its base was a stone with a thick covering of camwood powder. Tethered to this stick was a kid. Holding the *me kuñ* in his right hand the head-chief made an oration to the people, emphasizing each point by prodding the kid with the butt end of the *me kuñ*. He prefaced each sentence by the words "*Iɣā Eɣāp.*" The subject of the speech, as told me afterwards by the head-chief, was that all the people were to be law-abiding and that all quarrels were to cease. By way of acquiescence the people called out "*Kēi kō*" in an emphatic manner. After the speech was concluded all the people stamped on the ground, taking their time from the head-chief. They then called out "*Ke sie zii*" to let the supreme god (*Mbomvei*) know that the townspeople were looking after the welfare of the town. The head-chief then cut the kid's throat and the blood was allowed to flow over the stone at the base of the stick to which it had been tethered. After throwing the carcase down, the head-chief was handed a buffalo horn of palm-wine, from which he drank. As he did so the people called out "*fiir.*" One of the attendants then handed him a large grass bag, from which he threw palm- and kola-nuts to all the people.

At the same time the head-chief's women threw peppers (*tei te*) to the people around the ground. The head-chief then resumed his seat and called up different people in the assembly. As each man's name was called he responded by calling out "*Mbomvei,*" "*Nde*" or "*Zaki,*" the last being a word which has been introduced through Hausa influence. As each man came up, the head-chief gave him a present of palm-wine and a handful of nuts. The latter were placed in a small grass bag which is always carried by both men and women. The artificial horn (*tɷo pe*) which had been played in the *sū* ceremony was now used again by the same man. The head-chief remained sitting for a few minutes and then rose. As he did so all the women in the assembly rushed wildly into the bush away from the ground. The head-chief said that this was because they were not supposed to see any more of the ceremony. As a matter of fact, nothing further was done on the ground, for the head-chief retired into the enclosure and resumed his ordinary attire. The party returned to the head-chief's quarters in the same way that they came, and after the departure of the head-chief the townspeople all went back to their own compounds.

Sū ñgōñ. (22nd October, 1917.)

The people who had come to view this ceremony were assembled on the outskirts of the *izāñ foñ* (Fig. 1) a full hour before the proceedings commenced. At one o'clock a group of men appeared on the eastern side of the ground attired in long shapeless bag garments and masks (*si be*). They danced about the ground in a similar

[1] *Sansevieria spinosa.* [2] *Ficus* sp.

manner to that employed in the *sū* ceremony. Some of the men carried long leaves suspended down their backs in representation of the leopard skins of the former ceremony. Sticks were carried in lieu of spears, for none of the performers had weapons in this ceremony, the whole of which seemed to be a burlesque of the *sū*. At about two o'clock the *ncei foñ* proceeded round the outskirts of the ground, playing on their instruments as they did so, and after they had taken up their position near the *izāñ sū* the players of the sacred instruments appeared, and played as they came on to the ground.

They proceeded to the mound in the centre of the ground, where they took up their usual position. The head-chief, accompanied by his attendants, then made his appearance. All the women greeted him with shrill cries (*yuedi*) and waved whisks of leaves. When he had seated himself, three men appeared from the direction of the sacred-instrument hut. They were attired in long shapeless gowns made of a coarse bagging (*ndze kaa tso*), which were decorated with very rusty-looking feathers. On their heads they carried enormous wooden masks (*kaa tso*) carved with grotesque human-face designs. These masks are kept in the sacred-instrument hut. These men held carved staves (*kuuñ kaa tso*), which were said to be spears for the use of the ghosts of the departed head-chiefs. With many gesticulations and gyrations these men approached the head-chief and, after greeting him with posturing in all kinds of absurd positions before him, palm-wine was poured out on the ground. Five small chickens, the same number of dried fish, koko-yams, and small packages of palm-oil, together with some palm-wine, were then given to each man. As this was being done the head-chief said that this was food and drink for the use of the ghosts of the former head-chiefs. He then killed a goat in the usual manner by cutting its throat, and the blood was allowed to flow down on the ground in front of the men. The head-chief said that this was the flesh food for the use of the ghosts. There was then a brief pause before the head-chief seized a staff and rushed to the burial-hut (*faa ndāp*) of the attendant whose duty it is supposed to be to look after the ghosts of the former head-chiefs of the Eγāp. As they ran everybody yelled "Beware of the stick." At the entrance of the hut the head-chief addressed this man's ghost and exhorted him to look after the ghosts of his charges. After this the whole party went to the sacred-instrument hut.

About the time that the head-chief and his attendants arrived at the *izāñ foñ* a party of men rushed on to the ground from the northern side. It was headed by the attendant in charge of the sacred-instrument hut, a man attired in a nondescript garment of network and leaves. On his head was an enormous wig (*two mbā mve*), the front part of which covered his face. He looked as if quantities of soot had been thrown over him after he had been dressed for the ceremony. On his back he carried a square hide valise-shaped bag.

As this man ran hither and thither the remainder of the party pelted him with pieces of plantain stalk. This play lasted until the head-chief and his attendants

left for the sacred-instrument hut. As soon as they had disappeared, a rush, headed by the man with the wig, was made to where the carcase of the goat was lying. The leader fell down on the ground and savaged the carcase in a most revolting manner. His body was soon covered with blood and dirt, and when he rose he presented a disgusting appearance. Palm-wine was then spilled over the carcase and on the ground. The carcase was then seized by the leader, who ran away with it to his quarters behind the sacred-instrument hut. As he ran all the people pelted him with pieces of plantain stalk. The head of the animal was retained as his perquisite, and the rest of the flesh was distributed among his assistants in the ceremony. The head-chief told me that the main object of this ceremony was to amuse the onlookers, especially by the maltreatment of the goat's carcase.

During this ceremony one of the men splashed palm-wine against the clothing of all the players. The explanation given was that it was not considered right to give it to them to drink in the ordinary way. By dashing it against the clothing the ghosts would receive the benefit of the drink.

Sū foñ mbeivi. (23rd of October, 1917.)

In preparation the head-chief was attired in a yard adjoining his living quarters. His body-cloth or kilt-like garment (*ndze ci*) was very similar to that worn in the *sū* ceremony. His belt (*kwɷop*) was a twisted blue cloth. The upper part of his body was daubed all over with streaks of yellow ochre (*fū ñgōñ*) and kaolin (*mbūp*). On his right arm he wore a double bead armlet and in his hands he carried two bags of different sizes. The larger was called *paap* and the smaller *paap nzobo*. Shortly after two o'clock, accompanied by his attendants, he proceeded to the *izāñ tebbi* (Fig. 1), which is situated to the north of the sacred-instrument hut. The party, which was preceded by the men playing the sacred instruments, passed the *ncei foñ* who were playing outside the burial-hut of the attendant (*faa ndāp*). At the *izāñ tebbi*, soon after the arrival of the head-chief, all the attendants and assembled people danced before him, while the women "shrilled" their call (*yuedi*). As in other ceremonies the townspeople were gathered around the edge of the ceremonial ground. An enclosure of rough matting was erected on the north side of the ground and the head-chief entered it, followed by some of his attendants. In one corner there was a large crown-like structure ornamented liberally with cowry shells and with a long white tassel attached to its top. The head-chief sat down on a stool and a calabash of palm-wine was given to him by one of the attendants. This was distributed to each man in the enclosure. As in another ceremony, it was drunk from the palms of the hands. A handful of kola- and palm-nuts were then given to each man, who received them in the usual crouching position.

The head-chief then seized the crown-like structure and whirled it round, stamping on the ground as he did so, while all the men called out "*waa ñgwii*" as this was being done. The party then left the enclosure, the head-chief, preceded

by two men carrying long leaves,[1] went to a stool outside the south-eastern corner. The space in which this stool was placed was bounded by leaves similar to those carried by the two attendants.

The chief men (heads of compounds) were seated on the southern side of the ground, facing the head-chief. Near them was a small tree, and at its base a kid was tethered. Close by was a stone covered with camwood powder. The leader of the *ncei foñ* band was called *foñ mbeivi*, and he sat in the middle of the men just referred to. He wore a peculiar headdress, which consisted of a string skull-cap, to which very large cloth balls were attached. Around his neck he wore a string of leopard's teeth. In front of him, and stuck into the ground, was a miniature staff (*me kuñ*). His attitude was, apparently, one of depression, and he sat with averted eyes during most of the ceremony. There were three men in attendance on him.

The head-chief called out the names of certain men amongst the assembled townspeople, and they each responded and approached him in the usual crouching and crawling position. Each man was given palm-wine to drink, and then a handful of kola- and palm-nuts were placed in a grass bag which each man carried. This distribution lasted about half an hour, and when it was over the head-chief sent an attendant to *foñ mbeivi*, who was given whispered instructions.

The head-chief then made an oration near the small tree where the kid was tethered. The proceedings were practically the same as those of the *ndzo ñgōñ* ceremony. He emphasized each point in his speech by prodding the kid. When he had finished, an attendant handed him a carved buffalo horn full of palm-wine. Before drinking it he called out "*meno*."

The kid was slaughtered in the usual manner, but before throwing the carcase down the head was severed and thrown apart from the body. An attendant then handed the head-chief a large grass bag from which he threw handful after handful of palm- and kola-nuts to all the people, who made a wild scramble for them. As he did this the head-chief called out "*wə̄ə̄ ye te, wə̄ə̄ ye te*" (lit., this is for the sake of your parents). As this was being done the women called out continuously in a very loud manner.

Then followed a complete silence for about five minutes, after which everybody commenced to call "*foñ mbeivi*"; at the third time of calling this man rose from his stool very slowly. Carrying his miniature staff he went up to the head-chief. In a crouching position he was given palm-wine in the palms of his hands to drink. The *ncei foñ* then began to play their instruments and the *foñ mbeivi* seized the kid's head, held it before him, and danced in an aimless manner over the ceremonial ground. He was followed by the *ncei foñ*, who played all the time, and then by the women. This dance lasted for about two minutes and the *foñ mbeivi* resumed his seat. The head-chief then rose and, accompanied by his attendants, returned to his quarters.

[1] *Sansevieria spinosa.*

The rest of the people dispersed as well and did not, as in the other ceremonies, dance after the departure of the head-chief.

On the morning of the 24th of October the two bands of players (*ncei foñ* and *Mωo pũo*), after playing outside the head-chief's quarters for a short time, returned to their own compounds. They had been playing outside the head-chief's quarters every morning and evening since their first appearance.

Sũ Ñgõñ. (25th of October, 1917.)

This ceremony was held in the afternoon about the same time as the others. The head-chief was attired in his everyday garments and was accompanied by the usual attendants. In front of the attendant's burial-hut (*faa ndāp*) was a space (*ñgɣii pω*) which had been prepared during the morning. (Fig. 1.) An attendant handed a goat to the head-chief, whose first action was to cut its throat, saying as he did so that he was doing it for the benefit of the ghosts of the former townspeople. The carcase was then thrown on to a fire which was near the seat of the head-chief. In a few minutes, long before the flesh could be cooked, it was taken from the fire and cut up by the head-chief. A portion was given to the men who were assembled near the *faa ndāp*, and they devoured it without any further preparation.

The head-chief then retired to a place at the back of the *faa ndāp*, accompanied by one of his attendants (an *mpforsei*). Here he spat into a small bunch of leaves after chewing two berries (*mbii so*). After this he returned to his stool and sat down. He took no further part in the ceremony and shortly afterwards proceeded to his own quarters.

After the departure of the head-chief a procession was formed of the townspeople, who went to the *izãñ pfuñ pfiñ*, preceded by two men beating drums (*ñkaa ñgãñ*). Dancing was indulged in and nearly every person carried a whisk (*tsii ñgãñ*) made from strips of dried raphia palm, which they beat against the open palm. These particular whisks are used in two ceremonies only, the other one being the *ñgãñ*, which was held on the 28th of October. The dance itself was a circular one, very similar to that in the *zepoñ* ceremony. It did not last very long, and when it was over all the players drank palm-wine. This drink was heated, and when it boiled over, all the dancers called out a long-drawn *wũ̀-ũ̀-ũ̀-ũ̀-ũ̀* in a very high tone. The exact significance of allowing the palm-wine to boil over I was unable to determine, but as far as I could ascertain there is some connection between it and the ghosts of the former members of the tribe. Mr. Joyce, who has very kindly gone through my manuscript, says that "possibly the splashing of palm-wine by hand, and letting it boil over, has the same significance, whatever it is." The head-chief informed me that this particular ceremony was for the benefit of the ghosts of the relatives of each living attendant (*mpforsei cuo foñ* and *ñgɣii foñ*).

Ngāñ. (27th and 28th of October, 1917.)

This ceremony was one of the most important of the whole series. The head-chief did not make any special preparations with regard to his clothing. About midday on the 27th, accompanied by his attendants, he proceeded to a spot on the north-western side of his native hut (*ndāp foñ*). Near the door and on the ground were two small bundles of leaves (*tsuo tuin*).[1] A fowl was handed to the head-chief by one of his attendants. It was then sliced into two with a sharp knife; as he did this the head-chief said "*ñgāñ puro*" (lit., "make the town sit down very quiet"). Half of the slaughtered fowl was then placed inside each of the bundles of leaves. They were taken to the tree near the north-western corner of the hut, at the base of which a bowl of palm-wine is let into the ground. The head-chief was handed an egg, which he broke over the bowl, saying as he did so, "*Wω moñ ñgūp pe ne*" (this is your own food). A mixture of palm-oil and the leaves of a plant called *fωo ñgāñ* was then rubbed on the outsides of the bundles of leaves by the head-chief. He told me that this was done as "medicine for the *ñgāñ*." They were then thrown through the open door into the hut, and later on in the day were burned. The head-chief then gave a little of a mixture similar to that which he rubbed on the bundle of leaves to each of his attendants, who smeared it over their bodies. This was done in recognition of the fact that the head-chief was going to attend the *ñgāñ* ceremony. Before proceeding to the *izāñ foñ*, the head-chief attired himself in a large body-cloth (*ndze ñgāñ*), very similar to the one he wore in the *sū* ceremony. Over each shoulder he carried a small white-and-black knitted string bag (*iγωobe ñgāñ*), the insignia for this ceremony. Any attendant who had assisted at a previous *ñgāñ* was entitled to wear one of these bags. On the head-chief's left arm he carried a small skin bag (*paap ndzūñ*) to which a small brass bell (*ndzūñ*) was attached. This is the general symbol carried by each of the senior attendants (*mpforsei*) to denote their rank. About three o'clock in the afternoon the head-chief, accompanied by his attendants, proceeded to the *izāñ foñ*, where a small group of men and boys were dancing round one large and two small drums. As usual, there were a large number of onlookers. The head-chief took up a position in the south-eastern part of the ground (*izāñ ñgāñ*), and here (Fig. 1) his attendants grouped themselves about him. The ceremony commenced almost immediately with a dance. Most of the dancers wore small bunches of leaves[2] attached to their caps, and on their left arms they carried grass bags. Each man carried a switch rattle (*tsii ñgāñ*) made from strips of the rind of raphia palm, or else small sticks in their right hands. As they danced the switches were either beaten against the hand or shaken in the air. The dance was performed right round the perimeter of the *izāñ foñ*, each person dancing first with a short step with the left foot and then a long one with the right. The direction

[1] *Bauhinia rufescens.*

[2] *Gladiolus spicata; Hygrophila spinosa; Newbouldia laevis.*

was from left to right and in single file. Occasionally a small group of the dancers would run from their places in the line to the centre of the ground, where they would posture and shake their switches. This was done from several parts of the line at the same time, and afterwards the dancers would resume their places. At the head of the line was the attendant (*te ndāp ñgōñ*), who was in charge of the sacred-instrument hut. On his head he wore a square leather cap (*cuo ñgāñ*), and around his neck a curious necklet (*naa ñgāñ*), from which goats' horns and cowry shells were suspended. In his right hand he carried a very large bunch of leaves. When the line of dancers had completed one circuit of the ground a number of men rushed on from the eastern side near the *faa ndāp*. They carried large antelope horns (*iɣāñ puño ñgāñ*), which were painted in a variety of ways, but in which spots and series of straight lines predominated. The leader of this group carried a small gourd (*wei puro*) which was also decorated in this fashion. As they approached the head-chief all the rest of the dancers rushed up calling out "*Bɷaa*" (give the head-chief road).

This was the signal for him to rise, and as he did so he seized a pair of hartebeeste skulls (*puño ñgāñ*) with the horns attached. In the orbits small bunches of leaves (*mbo pot*) were fastened. With exaggerated gestures the head-chief now took his place at the head of the line of dancers, holding the horns before him all the time. As he danced the men with switches beat on the ground with them, keeping excellent time. As the head-chief danced he called out "*Ñgō ñgō nō*" (lit., "This is a universal dance"). After completing one turn round the ground he returned to his stool. The drums now ceased beating and there was a complete silence for the space of about a minute. The performance was then repeated, with the exceptions that only half the circuit was made and that the men with the horns did not join in it. When half-way round the head-chief led a wild rush all over the ground in order "to find the way." He was followed by all the people, who kept up a continuous chanting. The head-chief then returned to his stool and sat down, and the assembly went to a space (*po*) near the *faa ndāp*, where they were harangued by an attendant (*mɷo ñgaa iɣāñ*) about looking after the welfare of the town.

After this they all resumed their original places. A small group of men (*pūñ*) then appeared on the ground, and by acting in all sorts of absurd ways kept the assembly in an uproar of laughter. The head-chief informed me that it was the duty of these men to make the people laugh. He said that the performers came from the same quarter of the town and that they held hereditary rights to act in this manner in each performance of the *ñgāñ* ceremony. Unfortunately I was unable to obtain further information as to whether it was by patrilineal or matrilineal descent that they claimed this right.

This by-play lasted about five minutes, and then the *pūñ* retired and another group of men came from the direction of the *faa ndāp*. The leader chanted, "*Ngāñ tsaio ɣ̄ɷ̄ɣuo*" (lit., "This is the time for the *ñgāñ*. Is it not so?"). The remainder of the group answered in chorus, "*Ahɷ̃-ɷ̃-ɷ̃-ɷ̃-ɷ̃ Ahɷ̃-ɷ̃-ɷ̃-ɷ̃-ɷ̃*" in a very musical

manner. They ran to the place where the head-chief was sitting, and two men of the group swung a large bunch of leaves (*fūo ñgāñ*) containing a carved stick (*tsωo to*) up and down in front of him. The leader broke into his chant, and the rest of the men responded in the manner just mentioned. The bunch of leaves was placed in a very large woven grass bag (*paap ikūp*) by the leader. He then grasped another of the party by the hands, holding some dried leaves (*fūo* ʒωie) the while. They postured and struggled with each other in front of the head-chief, and as they did so the chant was altered. The leader now sang "*Oγω̄-γω̄*," and the response was, "*Aγω̄-ω̄-ω̄-ω̄, Aγω̄-ω̄-ω̄-ω̄.*" The two men, after a very short time of struggling, fell on the ground. One of the party then struck each of them in turn with a large mat bag (*paap pot*), whereupon they arose again. The whole of the party then danced to a spot where another large mat bag (*iγūp*) was lying on the ground, guarded by two men (*mbā iγūp*). This bag is one of the symbols of the *ñgāñ* ceremony, so the head-chief informed me. The dried leaves which had been held in the struggle were placed in this bag, after which it was taken to another part of the ground by the two keepers. This completed the first part of the *ñgāñ* ceremony.

After a few minutes' rest the dance around the ground was again performed, and when the dancers had completed the circuit they all assembled in front of the head-chief, who was sitting on his stool. In the space (*po*) in front of him a fire was made, and on the fire-stones a large earthenware pot was placed by an attendant. It was filled with palm-wine, but before the attendant poured the cold liquid into the pot the head-chief touched it with the tips of his fingers. When sufficiently heated it was placed in front of the head-chief, who distributed it to each of his attendants. When all the palm-wine had been consumed the head-chief, accompanied by his attendants, made his way to the sacred-instrument hut. Outside the doorway there were four carved staves (*kuu ñgōñ*) with the ends stuck into large bunches of leaves, and one of them was now seized by an attendant, who ran round the enclosure surrounding the sacred-instrument hut, calling out as he did so, "*Atso foñ ñgaa me kye*" (lit., "The head-chief orders me to do this"). All the men in the assembly then called out in reply, "*Yaa kaa tso.*" The head-chief was then handed an iron double-bell, as were also the attendants, and he gave the signal to commence, whereupon for a minute or two they all played. Only one drum (*ñkaa ñgōñ*) was beaten. This playing was a signal for all the women to leave the *izāñ foñ*, and to warn others to keep away. The whole party then proceeded to a spot at the back of the *faa ndāp*, and at a given signal from the head-chief the whole party rushed to the south-eastern corner of the *izāñ foñ*, each man yelling as he ran. One of the bundles was then deposited near where the head-chief had been sitting. Exactly the same was done for the north-eastern, south-western and north-western corners of the *izāñ foñ*, which were called *izāñ tibbi*, *γwωo mesere* and *γwωo shi*, respectively. (Fig. 1.)

This concluded the ceremony for the 27th of October. Guards were left on the *izāñ foñ* to guard the bundles of leaves, and they proceeded to make drains round

each of them in case of rain. The head-chief and all the people returned to their compounds.

Early in the afternoon of the 28th of October the townspeople gathered in great numbers at the *izāñ foñ*. The head-chief's stool was placed in the *izāñ ñgāñ*, with a clear space in front of it bordered by long leaves (*mɷoda*). Near by was another wooden stool, which was carved with representations of leopards ornamented with white spots. On each of these two stools were small bunches of leaves (*tsūo tuin*), and resting against one of them there was a staff. In about the centre of the *izāñ foñ* a group of men sat on the ground, whilst a little way apart from them was a man, well smeared with camwood powder, who was holding a small mud image (*mɷo me iɣɣii*) on his lap. It was supported on the top of a large mat bag (*iɣūp*), and was made in human form, and plastered with camwood powder and kaolin. The mouth, ears and eyes were coloured white.

A general dance had been in progress for some time before the head-chief, accompanied by his usual attendants, appeared on the ground. He was dressed in the usual body-cloth (*ndze ñgāñ*), but this time it was ornamented with small brass bells and a great number of cowry shells. The upper part of the body of the head-chief, and also those of his attendants, was painted with alternate stripes of yellow ochre and kaolin. The head-chief's cap (*cuo foñ*) was decorated very liberally with a number of porcupine quills (*tsuñ ñgōp*). In his hands he carried a pair of hartebeeste horns. He sat down for awhile, and then a dance similar to that which opened the proceedings on the previous day was performed. Some of the dancers carried small staves in lieu of raphia-palm switches. After it was over a group of men appeared from the eastern side of the *izāñ foñ*. They carried antelope horns of various species, and resting them on the ground ran all over the *izāñ foñ* in a wild and aimless manner. Occasionally they tapped the ground with the skulls of the antelopes to which the horns were attached. This performance was called *maaiɣung mbēi fo* (for the sake of the dead people). The head-chief told me that this was done in order that the ghosts of the Eɣāp might have a plentiful supply of animal life in the ghost world.

The head-chief now danced round the *izāñ foñ*, as on the former occasion. Preceding him was a man carrying a leaf[1] containing a mixture of palm-oil and the macerated leaf of a plant. This was done so that no one should approach too close to the head-chief. He then resumed his seat, and about five minutes afterwards the group of men with the small mud image approached the *izāñ ñgāñ*. The head-chief seized a staff which was resting against the second stool, and also the bunch of leaves which was lying on it. One of the attendants then handed him a chicken, which he grasped in the left hand. With both his arms outstretched he led a dance around the edge of the *izāñ foñ*. The man carrying the mud image danced in front, and from time to time the head-chief brushed it first with the bunch of leaves and then with

[1] *Sansevieria* sp.

the chicken. This was said to be an offering to the image. As this dance was proceeding, the group of men with the antelopes' horns rushed about in an aimless fashion as before, and from time to time tapped the ground with the skulls as they ran. As on the former occasion, the keeper of the sacred-instrument hut led this dance. Occasionally he ran to the centre of the *izāñ foñ*, and as he did so all the people would call out.

When the head-chief reached the north-eastern corner of the *izāñ foñ* he suddenly broke away and rushed in an aimless direction all over the ground, followed by the rest of the dancers. This was done in order "to find the road." All through this part of the ceremony the assembled onlookers kept up a continuous yelling. After ten minutes' dancing the head-chief returned to his stool. His staff was taken by one of his attendants to the adjacent ceremonial ground (*pω*) (Fig. 1). Here all the people assembled round an attendant, who spoke to them about the welfare of the town. While this was being done there was another display of buffoonery on the *izāñ foñ* by the same men who acted on the previous day. In various ways they acted; one of them would pour palm-wine into a bottomless cup, another would steal things from the grass bags carried by the other men, and by a variety of this sort of action they made the onlookers laugh. This part of the ceremony was called *pūñ ñgāñ*.

After the speech had been delivered by the attendant, the party proceeded to the place where the head-chief was sitting, some of them carrying a bunch of dried leaves (*fūo ʒωie*) similar to those used previously in this ceremony (p. 395). The leader sang, "*Piñi kye ne*" (lit., "Let all the people help to carry"), and as they came on to the ground they all danced. The ceremony of the previous day was then repeated. While the two men were struggling together the head-chief said "*ñgo ñgo no.*"

The dance round the *izāñ foñ* was then repeated, after which the head-chief proceeded to the south-eastern corner of the ground (Fig. 1). Then ensued the same indiscriminate rushing about the ground as on the former occasion. At a signal all the dancers rushed to the space *poh*, and when they were in their places all the performers called out, "*Waa iɣwii*," and those who had the raphia-palm switches beat the ground with them. The same attendant as before delivered an oration to the effect that all the women in the town were to be looked after and that there was to be no illicit intercourse, and further, that no man was to marry any relative of the head-chief without his permission. One of the men then picked up the staff (*kuu ñgōñ*) and carried it to the sacred-instrument hut amid a great uproar, everybody yelling as it was being taken from the ground. At the sacred-instrument hut the leaves were stripped off and buried in a hole near by.

For the third time the bunch of dried leaves (*fūo ʒwie*) was taken in front of the head-chief, and the same procedure was carried out as on former occasions. This time the rush was made to the north-western corner of the *izāñ foñ* with the mud mage. The second staff (*kuu ñgōñ*) was then taken to the sacred-instrument hut

and dealt with in the same way as the first. There was a dead silence after it had been taken away.

A man outside the *faa ndāp* then called out several times the head-chief's name, "*Pufoñ.*" The head-chief responded, "*zω̄-ω̄-ω̄,*" and proceeded to the burial-hut. When he reached it the attendant in charge of the sacred-instrument hut called out to the ghost which was supposed to be inside the burial-hut. Each time a call was made a whistle replied from inside. The head-chief sounded a few notes on a small antelope-horn tip (*ncei*)—this was to let the spirit know that the head-chief was waiting outside. Then he entered the hut with his attendants. He was handed a goat, which he slaughtered in the usual manner, the blood flowing over the inverted grave pots. As this was being done the head-chief said, "*Faa ndāp*" ("This is your food"). Powdered camwood was then sprinkled over the grave pots by the head-chief, who said as he did so, "*Ωo pü pe ne*" ("This is your own camwood powder"). Each attendant in the hut was then given some of this powder, which he rubbed over his body. After this, offerings of koko-yams, goats' flesh and palm-oil were brought in, but these were subsequently removed and eaten by the attendants. The head-chief now returned to the *izāñ ñgāñ*, and the man with the mud image came down before him. Offerings of koko-yams, palm-oil, dried fish, a chicken and some palm-wine were then given to him by the head-chief, after which he returned to his usual place. This part of the ceremony was performed in complete silence. Then the men playing the drums proceeded to the *izāñ tebbi*. Following them were the bearers of the large bag (*iγup*), and then came the rest of the party. Here there was another dance, but not all round the *izāñ foñ*, as on former occasions. The party rushed to where the staff (*kuu ñgāñ*) was lying, and they were again addressed by the attendant. Then, carrying the dried leaves (*fuo zwie*), they proceeded to the place where the head-chief was sitting. The same ceremony as before was gone through and the leaves were placed with the others in the large mat bag (*iγūp*). The party took the staff (*kuu ñgāñ*) and placed it with the others in the sacred-instrument hut. The ceremony was then transferred to where the other staff was lying, but before the party reached it a whistling was heard from the direction of the next ceremonial site. This was repeated several times, and then the head-chief called out, "*Si se*" (lit., "I am coming"). This was repeated a couple of times, after which the head-chief went to the next ceremonial place (*tsu ñkωāñ*), which was an enclosure of raphia-palm matting around a tree (*Ficus* sp.). The head-chief, who was accompanied by several of his attendants, slaughtered a goat in the usual manner by cutting its throat. As the blood was flowing, the ground at the foot of the tree was sprinkled with it, the head-chief saying as this was being done, "*Pū mωbo pe ne*" (lit., "This is for all the ghosts who come to this part of the town"). Leaving the enclosure the party then went to where the fourth staff was lying (*γwωo mesere*). The people were dancing around it as in former ceremonies. After it had been taken to the sacred-instrument hut all the leaves were buried in one hole.

Before leaving the *tsu ñkωāñ* a fire was lighted under a small bowl into which palm-wine had been squeezed from a sponge made of leaves, which had previously been anointed with the head-chief's spittle. The party remained until the liquid boiled over the side of the pot, and the head-chief called out, "*Kū pfωo se*" (lit., "This is for the use of the ghosts"). The party in the enclosure responded by calling out, "*Wū-ū-ū-ū.*" The fire was extinguished by palm-wine, and the pot containing the liquid and the remains of the fire-wood and the ashes were all folded up carefully in a plantain leaf and taken away by one of the attendants. A portion of the ashes was buried carefully by the head-chief, who patted the ground down afterwards with his hands.

After returning to the γωωo *mesere*, and after the staff had been returned to the sacred-instrument hut, another goat was slaughtered. The ceremony was practically the same as that which was held at the *tsu ñkωāñ*, with the exception that here the intestines were buried at the foot of the tree.

The remaining ceremonial places were some distance from the centre of the town, and unfortunately I was unable to go to them. They were called *su me myii* and *ne fωop* respectively. The head-chief told me that the ceremonies here were exactly the same as those which had been held at the two last ceremonial grounds.

It was well into the early morning before the final ceremony was over. Before the participants returned to their compounds they were supposed to bathe themselves, and they were to have no intercourse with women on the succeeding day.

During the month of November there were no set ceremonies, but the sacred instruments were played every evening in the vicinity of the sacred-instrument hut, or on the *izāñ foñ*. On the Bagam market days they were played during the afternoon in the market-place.

On the afternoon of the 29th of October one of the head-chief's senior attendants (an *mpforsei*) appeared in his stead in a ceremony which was an abbreviated form of the *ñgāñ*. The place where it was held was at the *ñgyii po*, where the head-chief sat in the *sū ñgōñ* ceremony. The main feature was the slaughtering of goats and the drinking of palm-wine. *Nde ta mfoñ*, the attendant, who was the chief figure in this ceremony, informed me that it was held for "the sakes" of the ghosts of the relatives of each attendant.

Ndōp. (11th December, 1917.)

The final rite in connection with the ancestral ceremonies was called the *ndōp*. The head-chief informed me that this was the last of the series which would be held, and that the next would not be held for some years. There are actually two parts of this ceremony, the first being held in the afternoon and the second in the evening.

South of the stream which is the town's main water supply was an enclosure made of the usual type of matting. This was about forty-five feet square and was situated a few yards from the main road through the town. About two o'clock in the

afternoon the townspeople began to congregate on the roadway, and just before the head-chief's arrival they went to the cleared space on the southern side of the enclosure and sat down. By far the greater number were connected with the head-chief in some way or other, such as his attendants and workmen. All his women were supposed to be there also. Their bodies had been well smeared with palm-oil in the morning.

The head-chief on his arrival sat down on a stool near to the entrance of the enclosure, where he was surrounded by a number of his attendants. Shortly after half-past two a procession of women, headed by the head-chief's maternal grandmother and his mother, filed into the cleared space in front of the head-chief. These women were all well smeared with camwood powder. The head-chief was handed a whisk of leaves by one of the attendants, and with water from a calabash he splashed their bodies as they went into the enclosure. This was done "to keep their skin (bodies) cool" and to prevent them from perspiring when working during the ceremony. Inside the enclosure they commenced to dig the ground into ridges, as is done on the farms in general. These ridges ran east and west. The women were supervised by the head-chief's mother and grandmother. When all the ground inside the enclosure had been worked over they returned to the space outside and sat down.

In the interval of waiting, the head-chief sat on his stool near the entrance of the enclosure and spent the time chatting to his attendants. The player of the pluriarc (*sū*) walked about singing as he played. The onlookers sat round the edge of the cleared space, and for the most part spoke to each other in whispers.

After the return of the women from the enclosure others brought the head-chief seeds or seedlings of every plant cultivated by the Eɣāp. As this was being done, two of the head-chief's favourite wives distributed a mixture (*tē tā*) of peppers wrapped in a fig-leaf to the onlookers, as well as to anyone who happened to be passing on the road. This mixture was eaten right away, as were some cooked koko-yams which were distributed later on. There was then a brief spell in which the only sound heard was the playing of the pluriarc.

Accompanied by three attendants (two *mpforsei* and one *cuo foñ*) the head-chief then went inside the enclosure, taking with him the seeds and seedlings. These they thrust into the soft ground quite indiscriminately. Any necessary instructions the head-chief gave in whispers; otherwise they worked in complete silence. An open wicker-work basket (*ñkei ñkop*) was placed on top of one of the beds. Then the head-chief dug a small hole in each corner of the enclosure with a digging-knife. A handful of salt was thrown into them and covered with a sprinkling of camwood powder. The salt was said to be for the use of the ghosts. Before the holes were filled in the head-chief tapped on a small double-bell six times in front of each of them.

Then he sprinkled each of the attendants with water by means of a whisk of leaves. A certain number of seeds and seedlings were left over and, after being collected by

an attendant, they were given to the head-chief's women. The basket (*ñkei ñkop*) was then sprinkled with camwood powder and taken to the head-chief's quarters. The head-chief and his attendants now left the enclosure and returned to their former places, while the women to whom the seeds and seedlings had been given entered the enclosure, where they planted them. When they returned, the head-chief sprinkled them with water and gave them each a handful of camwood powder. Then he went inside the enclosure and rubbed a forked stick with salt and then with camwood powder, and it was stuck into one of the prepared beds as a sign that all the sowing had been done for the benefit of the ghosts of former townspeople. Each of the attendants was then given some camwood powder by the head-chief, and this was rubbed on their bodies. The boy attendants then came up one by one before him and he rubbed some of it on their foreheads. About five o'clock this part of the ceremony was over, and the head-chief returned to his quarters accompanied by his attendants. Three men playing the pluriarc, the iron double-bell and the elephant-tusk horn, headed the procession. No guards were left at the enclosure.

At about seven o'clock the same evening the players with the sacred instruments assembled outside a small hut just north of the head-chief's quarters. The head-chief, who played on a drum (*ñkaa ñgōñ*), gave the signal for the playing to begin. The other instruments included two drums, a number of double-bells and the instrument (*taap*) which was played in the *zepoñ* ceremonies. After playing for about ten minutes the instruments were all taken to the eastern side of the hut. The head-chief then placed a small bag over each of his shoulders and entered the hut, accompanied by several of his attendants. All his women were in this building, sitting on the ground around a small fire in the centre. The head-chief sat on a stool in the south-eastern corner, and his attendants sat down on the ground close to him. There were no other males in the hut. For a little while there was dead silence, and then ten women began to play on short bambu flutes (*tω*). These instruments were end-blown transversely across the orifice, and as they were of different lengths they gave different notes. They were blown one by one in a descending scale very rapidly, and they were played for about three minutes. Then there was another spell of silence, this time for about ten minutes. Five calabashes of palm-oil were then handed to the head-chief by one of his attendants. This was distributed to each of the women inside the hut. Palm-wine was afterwards poured into a large earthenware pot, which was then placed on the fire-stones. There was another break for a full half hour, during which the only sound was that of the sacred instruments which were being played outside. The ten women then played again, but this time for one minute only. The palm-wine in the earthenware pot was then distributed to every person in the hut, to the women first and then to the men. As a rule it was drunk from horn or calabash drinking-cups. The head-chief and his attendants then went outside to where the sacred instruments were being played. A goat which had been tethered inside the hut was taken with them, as well as a supply of palm-oil. These were placed close to the sacred-instrument

players, and the party then returned inside the hut. The playing outside the hut ceased and there was silence for about fifteen minutes. A whistle from outside was blown, and as soon as the women heard it they swayed their bodies to and fro and called out, "*Yei e ndā; yei e ndā.*" This was repeated several times, and then another spell of silence ensued. The whistle was again sounded, and this time the women responded "*Yei e; yei e.*" The head-chief told me that the explanation of this was that the high god, *Mbomvei* (which was also the name of the first head-chief of Bagam) wished to know if all was well with the women of the town. He was supposed to ask this by means of a whistle. The head-chief gave me one of these (Pl. XXXI, Fig. 4), which was made of sheet iron. In reply the women affirmed that all was well in the town.

About ten minutes after this two knocks were heard on the door, and the head-chief went out with his attendants to the place where the sacred instruments had been played. They were all laid out in a row on the ground and their players stood behind them. One of the attendants handed the head-chief a calabash of palm-oil, which he broke open. He then rubbed some of the oil over each instrument and afterwards poured some palm-wine over them. Then the goat was slaughtered in the usual manner and the blood, as it flowed from its throat, was poured over the instruments. Camwood powder was then sprinkled over all of them, and they were taken by their players to the sacred-instrument hut. This concluded the *ndōp* ceremony, and the head-chief and his attendants returned to his quarters. Later on the women left the hut and returned to their homes.

This concluded the series of ceremonies held in 1917 in connection with the ancestral cult.

I now propose to refer briefly to some of the outstanding points which appear to be connected with the ancestral cult of the Eγāp.

As already mentioned, the principle underlying all the ceremonies is the supplication of the ghosts of the tribal ancestors to bring material prosperity to the tribe, to cause the women to bear children, and the crops to be fruitful.

The central figure in all the ceremonies, with one exception, is the head-chief, who combines in his office that of priest as well. This man is the pivot on which the whole tribal law and order revolves. He is the representative of the tribe for all things, whether for good or for evil. Assisting him are the senior and other attendants who accompany him to each ceremony. An old man acts as remembrancer to the head-chief in most of the ceremonies, but he has no official position. Women play a very subordinate part in all of the ceremonies, but during quite a number they may look on.

The ancestral cult ceremonies are performed in such a way that each member of the tribe is concerned in one or more of them. The first series includes the *zepoñ*, or ceremony of visiting the burial-huts of the head-chief's ancestors. It appears to be exclusively for the benefit of the head-chief, his relatives, women, and immediate

retainers. This ceremony, as well as the others, has been described in full detail, but there are some points which may be noted. The boiling or heating of palm-wine has a significance for which no explanation could be given, the giving of pieces of meat to women "to make them catch pickin," the subsidiary women's dance, and the meaning of splashing inside the *sie*, all require explanation. An interesting point crops up concerning the food-offerings at the graves. The staple article of diet is maize, but this was not used on a single occasion during the ceremonies witnessed. Koko-yams, however, were used as one of the principal food-offerings. This seems to point to the times before the introduction of maize, when koko-yams entered more largely into the tribal dietary than they do at present.

The second ceremony (*sū*) appears to be celebrated for the benefit of each member of the tribe. A number of visitors from other tribes also take part in it. The only occasion on which I saw a woman take anything like a prominent part was in this particular ceremony. A number of peculiar dances and bouts of mimic warfare have been described as taking place in this ceremony. When I witnessed it several of the performers wore various carved wooden masks or peculiar clothing, with animal-form headdress, or else they carried animals' skins on their backs. I was looking very closely for any form of animal cult or totemism, and made numerous enquiries concerning these elements. It is clear that the wearing of animal masks and skins is a form of animal cult, and a degraded one at that. Totemism is absolutely non-existent in Bagam. A member of the tribe may "follow" an animal, but he may also change his choice from time to time. On one occasion a man will bear a leopard skin, and on another a wooden mask with a carved representation of a buffalo's head.

The *ndurro* ceremony is a subsidiary one "to make the people happy."

The next group of ceremonies (*mbā ñgωōñ so foñ mbeivi*) have a number of peculiar features for which no explanation could be given me. It seems that they are performed for the benefit of the ghosts of former tribal members who lived in various parts of the town. The use of the whisk, whether of horse-tail or of leaves, is so universal in this part of the world that it requires further investigation.

A peculiar feature is introduced in the *ñgāñ* ceremony, for here we have a definite ritual performed so that the ghosts of former members of the tribe shall have a plentiful supply of animal life in the home of the dead. This seems a strange departure; for it would appear to be capable of explanation if the ghosts were asked to increase the supplies of animals for the use of the tribe, but here the reverse is the case. On this point the head-chief was my informant. I was unable to find out the meanings of the other details of this ceremony.

One ceremony on a much smaller scale is performed with one of the senior attendants acting as the priest. This is an abbreviated form of the *ñgāñ*, and is performed for the benefit of the ghosts of the relatives of the head-chief's attendants.

The final ceremony (*ndōp*) is one in which the women of the tribe take a definite part. Its object is the planting of seeds, &c., for the use of the tribal ghosts. The head-chief's women prepare the garden, after which the head-chief and three of his attendants plant the seeds and seedlings. Then the women plant some also. One point concerning this ceremony appears to indicate that amongst the Eγāp the working of the soil has always been done by the women. The ceremony in the evening is mainly for the head-chief's women, and in it communications from the high god are supposed to be heard asking if all is well with them.



FIG. 4.—WHISTLE IN FLANGED SHEET-IRON.

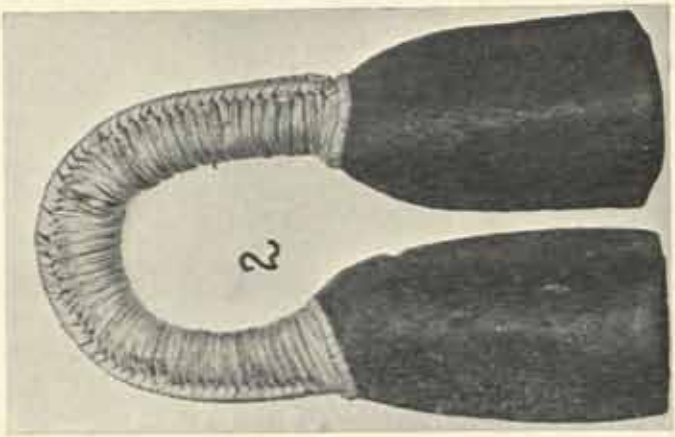


FIG. 2.—IRON DOUBLE-BELL.

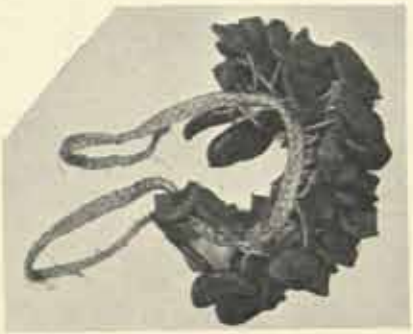




FIG. 3.—LEG-RATTLES.

FIG. 1.—HORSE-TAIL WHISK.

THE ANCESTRAL CULT CEREMONIES OF THE EʏĀP.

PLANT-EMBLEMS AMONG THE OROKAIVA.

[With Plate XXXII.]

By F. E. Williams, Assistant Government Anthropologist, Territory of Papua.

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I.—The Organization of the Orokaiva.

(*a*) *The People.*

As introduction to this paper, a brief summary may be given of the social organization of the Orokaiva. These people occupy the greater part of the Northern Division of Papua. Geographically, their country is bounded on the north by the River Waria, or, roughly speaking, the old German boundary; on the west by the Central Range; and on the south by the Hydrographers, though there are some sections of the people scattered along the seaboard further southward.

The people are predominantly Papuan, with not improbably a strain of Melanesian blood. They were cannibals, and noted for their fighting quality; their weapons are the spear, club, and shield. They live in the main by their gardens, of which the staple product is taro, and, secondarily, by hunting, fishing, and sago. The Orokaiva territory is for the most part plain country; there are tracts of *lalang* grass and broad expanses of sago swamp, but by far the greater area is under thick forest.

The inhabitants of this country speak various dialects of the same language, and have no practical difficulty in understanding one another. This language has

been called Binandele, because the dialect of that particular tribe has been the most studied. There is a general similarity in physical type throughout the population, and a general similarity in manners, customs, and material culture. Making due allowance for certain tribal differences, we may still refer to the Orokaiva as a fairly homogeneous group.

(*b*) *Division into Tribes.*

The group is divided, on no very strict basis, into a number of tribes. These have been mapped out by E. W. P. Chinnery and the late W. N. Beaver in "Papua, Annual Report, 1914–15" (p. 158).

The tribe usually, but not invariably, occupies one continuous area of land, *i.e.* it is in the main a local unity. It is distinguished by some linguistic differences, not always very great, but immediately obvious to the native, who by way of linguistic classification gives nicknames—Aia Mama, Aiaka Mamaka, Aha Maha, etc.—to the tribes according to their several phrases for "Mother and Father." Mutual enmities and alliances, more or less permanent, have served to mark the political identity of the tribes, and there are some cultural differences between them.

My own investigations have been principally among the following tribes:—Aiga (of the middle Opi); Binandele (Mambare, Gira, and lower Kumusi rivers); Tain Daware (coast between Mambare and Kumusi); and Wasida, or Jegasi Sarahu (on the plain immediately north-west of Mount Lamington). But enquiries in the other tribes as well as these show that the social organization is practically the same; and in respect of the Plant-emblems and the Clans (which together form the subject of this paper) the evidence has revealed a marked consistency throughout the whole people.

(*c*) *Division into Clans.*

Each tribe is split into a multiplicity of small clans; and from time to time the clans will further multiply themselves by subdivision. Whereas there are about ten tolerably well-defined tribes of the Orokaiva, the clans number hundreds.

They are so small as usually to occupy only one village; and sometimes they can boast no more than two or three representatives. Whereas the ultimate bases of the tribal division are political and economic, that of the clan system is lineal. The Orokaiva were formerly a people of fierce temper and restless habits, given to raiding, cannibalism, and interminable feuds. In the peculiarly merciless warfare of earlier times—the disruptive effects of which are sometimes, perhaps, underestimated—there are authentic tales of extermination, and, more often, of flight, dispersal, and migration. It comes about, therefore, that some clans have been widely scattered; there has been interpenetration, and now representatives or branches of the same clan may be found in different tribes, where they have taken on the slightly new colour of their surroundings. It will be obvious that the division into tribes and the division into clans cannot always be mutually conformable.

(d) *The Clan and the Village.*

The village is usually small—in these days of peace and security smaller perhaps than formerly. In the larger villages there are often two clans or more, which occupy separate ends or parts of the settlement. On the other hand, a vigorous clan may occupy several adjacent villages; and, as was said above, it may be scattered far and wide. However, the normal disposition is, one clan one village. Indeed, it appears that the clan in the first instance coincides with the village. For there is a tendency for individuals to strike out on their own account and found little homestead villages on the site of their gardens. At first they retain their old clan names; but, as the family thrives and develops into a small patriarchal group, it may take to itself a distinctive name and so become a young clan. The manner in which this clan name is acquired is a matter of principal importance in this paper.

(e) *The Constitution of the Clan.*

The Orokaiva clan is patriarchal and of very simple constitution. The child belongs to his father's clan, and his plant-emblem is that of his father. There are rare exceptions, cases in which a clan has been named after a woman, and in which the mother's plant-emblem has been adopted as that of the incipient clan; but these may be taken as proofs of the rule. The father is undisputed head of the family. The maternal uncle has certain ceremonial duties to perform, *e.g.* that of piercing the child's nose, but he cannot be said to exercise any authority in the normal instance. Between the nephew and his maternal uncle there are cordial relations, but no subordination and control.

It may be remarked in passing, however, that the relation between the father's people and the mother's people is, in practice, so friendly and intimate that the child associates himself almost as readily with the latter as with the former; and it is common for the plant-emblem of the mother (and of the maternal uncle) to be taken by the children as a secondary badge. Indeed, although it is not regarded as correct, an inexperienced child, if asked for his plant-emblem, will often enough give his mother's and forget his father's. In effect the Orokaiva organization very nearly approaches a bilateral system, though in theory it is patrilineal.

There is no rank of chieftainship, but a recognized ascendancy of the old men. The leader and ruler of any clan is simply the eldest of its men, provided he be not so old as to be incompetent, and provided always that his personality is equal to his position. (Where the clan is scattered there is no single leadership.) Over and above these clan patriarchs there are recognized leaders of small clan confederacies and even—in war-time—of tribes; but these need not be discussed, as our concern at present is the clan.

Roughly speaking, the clan is exogamous. But it is not strictly so. Sometimes informants will claim that it should be exogamous, but investigation reveals many instances in which it is not. On the other hand, it is sometimes maintained that it

is a proper thing to keep the women in the village, in the hope of building up its population.[1] On the whole, one may say that there is no strict rule, but only a general practice of clan exogamy.

Marriage is normally patrilocal, though the contrary cases are quite numerous. Where marriage happens to be matrilocal the rule of patrilineal descent is not broken, though no doubt the influence of the maternal side is stronger. It is not unusual for a man to divide his time between the villages of his wife's people and his own, living as comfortably in one as in the other.

The last point with regard to the clan is the fact of its common ancestry. The members of the clan itself always claim or assume a common ancestor, and there is no doubt that their assumption is in the main correct. Sometimes they cannot give a name, sometimes they can. Sometimes the name is only a generation or two old, and this, indeed, is what must be expected. If new clans are constantly springing into existence in the way I have described (a process partly neutralized by the dying-out of old clans), then it follows that the originator will frequently be a very definite personality who may have lived within the memory of one's informants, or in the extreme case be an informant himself.

II.—The Plant-Emblem or Heratu.

Every clan has a distinctive emblem or associate, in the great majority of cases a species of the vegetable kingdom. Among the Aiga tribe (of whom my information is the fullest) this is called the *heratu*, and throughout the remainder of this paper the word *heratu* will be used as the equivalent of plant-emblem. *Kenatu* is the form in the Binandele and Tain Daware languages; in Wasida a different word, *hae*, is used; and throughout the whole Orokaiva people alternative names are *evobo* and *ahije*, or some nearly equivalent forms.

It may safely be said that the *heratu* is universal among the clans, and almost invariably it is some plant or tree. The Orokaiva are mostly forest people. In the tropical bush there is infinite variety, and (what makes the bush so difficult for the timber-getter and so easy for the native) this variety is forever repeating itself. Give a native a moment and he will look about him and pluck you his *heratu*. The botanical names are of no consequence—fortunately so, as I cannot give them. There are large forest trees, such as *Boruga* and *Siruga*, the "canoe tree"; creepers and bushes; grasses and weeds. Sometimes they have an economic value; commonly they have none whatever. It is certain that they are not selected as *heratu* because of any use they may have. The accompanying photograph will give an idea of the plant-emblem; it is usually no more than a twig or an unpretentious handful of grass. (*See* Pl. XXXII, Fig. 1.)

[1] This, I believe, is usually when there is a surplus of women in the village, and this is a somewhat unusual state of affairs.

Since the *heratu* is in so great a majority of cases a vegetable species, the phrase "plant-emblem" seems to be justified. There are, however, some interesting variants, including a number of bird-associates and certain simple emblematic devices. Though I describe these somewhat in detail, it must not be forgotten that they are, relatively speaking, a very small category, and that the *heratu* is normally a plant or tree.

In the Wasida tribe I came across three bird-associates, *Kombu*, a certain black bird whose name "*Kombu*" is meant to reproduce its cry; *Hiviki*, the hawk; and *Hororo*, a small ground forager. These were all subsidiary emblems, and the clans to which they belonged had *heratu* of the ordinary botanic kind. Further, they were not, as far as I know, used for the regular purpose of the *heratu*, viz., a badge or token of identity. However, among the Binandele there was the *Diriu*, or common blue pigeon, of the Diriu clan; and among the Tain Daware the *Bangai*, or eagle hawk, of the Bangai-unji; and it was claimed that the feathers of both these birds were used as identity marks. The blue pigeon (with a slight dialectical change of name) is again *heratu* of the Dirou about the Hydrographer foot-hills, but I have no very trustworthy note on this instance. Among several score of *heratu* I have lighted upon only these six instances of birds, so that they may be considered very rare.

A few examples may be given of the semi-mechanical devices which sometimes serve as *heratu*. Among the Aiga the Honia-Noduru clan use a split stick—not a particular stick, but simply any small branch torn from a tree by the track and split half-way down its length. The Samberota clan has for its *heratu* a *sambi*, i.e. a green stick flattened or squashed at the end, as a wooden peg is splayed out by hammering. The Simborota, besides their plant-emblem *Simboro*, have a habit of stamping their heel (*atu*) into the soft ground to leave the print of it as their mark. Among the Binandele we find *topo*, any broad leaf rolled into a spiral with the same quick turn of the hands which we see behind the grocer's counter; and *pono*, a foot or so of creeper fashioned into two tangent circles in imitation of the ornament *pono*, which consists of two circular pig tusks. The Umbengi clan of the Tain Daware have for their *heratu*, *umu-bengi*, literally "water-clod," i.e. the clod of earth continually dislodged by the stream from the river bank.

Further instances of this nature could be given. It will be seen that all these, like the usual plant *heratu*, have this much in common, that they may be extemporized in a moment. A native cannot lay hold of a bird or an animal whenever he wants it; consequently birds are rarely adopted as *heratu*, and animals or fish, so far as my investigations go, never.

It is common, almost regular, for the clan to have one or more alternative *heratu*. For this there are several explanations which may be regarded as concurrent. In the first place, it is well to have an alternative or emergency *heratu*. If the tree *Tuvira* is not handy, then *che jakara*, a grass stalk will do, and, failing that again,

komusu, a leaf of any kind made into a scroll, and by one or the other of these you may know that a Serugahije man has passed.

Secondly, there is a sort of hierarchy of *heratu*. As was said before, the clan is continually subdividing. The sub-clan or incipient clan, even the individual, may adopt an independent *heratu*, but, still belonging to the parent body, continue for a time at least to use the parent *heratu*. Thus two branches of the clan Simborota, retaining their original *heratu*, the river-grass *Simboro*, have each their distinctive mark, one the tree *Omĭnga*, and one, *atu*, the imprint of a heel.

Thirdly, a man uses both the paternal and the maternal *heratu*. As I have previously mentioned, the *heratu* proper is the former, and the contrary instances which do occur are exceptional. The *heratu* of the father is passed on by inheritance, whereas that of the mother is not normally handed down beyond the generation of her offspring. However, so close is the intimacy between the two branches of the united family, that the son or daughter may be as familiar with the mother's *heratu* as with the father's. Within the clan, indeed, it is the distinctive mark of the household, and a man may often employ his father's and his mother's emblems simultaneously so as to make his identity the clearer. Further, as it is customary for a man to spend some of his time in his wife's village, it follows that the son must spend some of his time in his mother's village, and while there he may use his mother's *heratu* in preference to his father's, which would be less familiar among the surrounding villages and clans.

III.—Uses of the Heratu.

(*a*) *As an Identity-Token.*

So far I have not mentioned the uses of the plant-emblem. If one asks a native what he actually does with his *heratu*, he will assuredly answer: "I place it on the track so that others who follow may know I have passed that way." This, indeed, though not the only use for the *heratu*, is the commonest. At a junction of two paths, I have come upon eight different kinds of leaves or grass, placed there during the morning and as yet scarcely wilted. My boys, who were inhabitants of the district, were able to identify each clan by its *heratu*; the owners of them had passed this spot at intervals, all bound for one village as guests to a feast and dance. The stem of the leaf, the root of the grass, or the butt of the branch, should point in the direction which its owner has taken, but apparently this rule is not observed with strictness.

There is another use similar in principle. When a hungry man sees a ripe bunch of bananas in the garden of his friend he will not hesitate to help himself. It is to be feared that he would not hesitate over long if he met the same temptation in the garden of a stranger. In the first instance, however, he will eat his fill of the bananas, or whatever it may be, and leave his *heratu*. When the owner comes to his garden and sees this he will be satisfied, for no native begrudges food to his friend.

I have had occasion myself to use this simple expedient. Finding a village where we meant to lunch for the time being deserted, we steal a bunch of bananas, cook them, and go on our way with invigorated and cheerful carriers. To account for this act of pillage we need only leave a stick or two of tobacco by the remains of the banana bunch, tied to a sprig of croton, which happens to be the *heratu* of a rather distinguished old native who is with me. We may then feel that we have not only made payment but given the fullest possible account of our behaviour.

In these two uses the *heratu* is an identity-token, having a sort of evidential value in proving presence or agency, like a national flag left planted on the North Pole, or a visiting card slipped under the front door. It may be remarked that the *heratu* is never worn or carried by a man simply as a badge. It is an identity mark *in absentia*.

(*b*) *As a Mark of Individual Abstinence.*

The next use for the *heratu* is a somewhat singular one. It is used by individuals as a sign of abstinence, a sort of self-inflicted tabu; and this, it would appear, is invariably the outcome of some quarrel or grievance. The Orokaiva is very prone when his feelings are hurt to punish himself rather than the man who has hurt them; or, perhaps better, to take revenge upon the other party by punishing himself.

Thus, if a man fall out with his wife, he will thrust a sprig of his *heratu* through his armlet, and while he continues to wear it will receive no food of her cooking. Not that he altogether starves himself into relenting; some friend will cook for him until his mood softens, and then there are interchanges of gifts between the wife's people and his own, and, as I am told, invariable reconciliation. Similarly, a wife who has been accused by her husband of sponging on him, not working for her keep, will advertise her grief and indignation by wearing her *heratu*, and will, for the time being, refuse to eat another taro out of his garden.

A bunch of drooping leaves may be seen tied to a coco-nut palm in the village. The owner has fallen out with a neighbour over the boundary of his garden. The row of tree trunks which constitutes the mutual garden border has been displaced and shows an encroaching and unwarrantable bulge. Therefore he has set up his *heratu* to indicate that he has been imposed upon, and has broken off friendly relations with his neighbour; he will accept no hospitality from him (and give none) until the matter has been adjusted. Another man nurses some resentment against a near-by village. If he were bidden to a feast there he would go, but with his *heratu* in his armlet, and when the wooden dish of savoury taro was placed before him he would wave it aside, or lay his *heratu* upon the food to show that he could not accept the hospitality of those who had wronged him. Then the offender would be put to shame and punished, and be sorry for what he had done.

(c) *As the Naterari or Village Tabu-Post.*

The *heratu* appears again in its most interesting character as the village tabu-post. In many parts of the territory it is the custom long before a feast to set up some tangible sign of tabu upon the coco-nuts. Among the Orokaiva this sign commonly takes the form of a wooden post or pillar, roughly carved and painted; and this post should, properly speaking, be of that particular wood which the clan owns for its *heratu*. This, however, cannot be a universal rule, because the *heratu* is often a grass or some small plant; but it may be said that, when the *heratu* is a tree, the tabu-post is a stump of that tree. (In the other cases it may be a post of some alternative wood, or—a frequent substitute—one or two wands of the very light timber called *Pamba* tied horizontally to a palm.)

Among the Aiga such a post is called *naterari*, and this word will be used as an alternative for tabu-post. *Na* means "village" and *terari* "to close up," as a creek is dammed up with stones, or as the hollow drum is closed at one end with the lizard-skin. The Binandele word is *ao*, apparently a contraction of *ago* (another dialectical form); I cannot make any suggestion as to its real meaning. In Wasida the same object is called *itembari*, probably a compound of *i*, "tree," and *tembari*, "to place on top." In Dobaduru the word was *natembahije*: *na* (village), *temba* (to place on top), *ahije* (ancestor). I propose to deal somewhat lengthily with the functions of the *naterari*, because they may throw a light on the real nature of the *heratu*.

Some time after a man's death it is customary to give a large feast to which all the mourners are invited. Such a feast is usually accompanied by a dance, and perhaps by some other ceremony (such as the debut of initiates), which may have no immediate connection with the deceased. This, indeed, is merely to kill two birds with one stone, or to satisfy more than one social obligation with the same batch of pigs. However, the feast at any rate is to be regarded as placatory to the departed spirit. Some months after the man's death the *naterari* is set up in the centre of the village, and from this moment the coco-nuts are not eaten green, but allowed to ripen and fall, until at last there is a tremendous accumulation, perhaps laid out in lines on the ground, or else piled on a mountainous tripod.

Meanwhile the *naterari* has been standing in the village clearing, as if silently watching the slow preparations, somewhat weatherbeaten by now, and with its originally garish make-up a little faded. It is, however, treated with a certain amount of care and respect. It is not uncommon to see a miniature four-legged shelter to protect it from the rain, with a gabled roof of sago-thatch, and perhaps underneath the roof a little platform. (Pl. XXXII, Fig. 2.) On this platform may be found an old bamboo cylinder pipe, a lime gourd, perhaps a handful of withered betel-nuts; and beside these a few fragments—fresh or mouldy—of cooked taro. These are so placed for the spirit of the departed, or, to use the Aiga word, the *sovai*. It will come by night and refresh itself to that extent which is proper for a spirit, or as a native will say, with a twinkle in his eye, taking no more than an ant might

eat. In addition to these offerings there may be found certain mementoes of the deceased—an old banana-seed necklace, a shell bracelet, in one case a broken gourd that had been a urinary for an invalid and bed-ridden old man.

When the preparations for the entertainment are complete the *naterari* is removed, and, with its removal, the coco-nut tabu comes to an end. Normally, it would appear, the *naterari* stands through the time of feasting and is removed afterwards. Sometimes, I am told, the provisions for the feast are displayed before the post—row upon row of wooden dishes piled with cooked food—and it is called upon to witness the feast in its honour.

There is still something of reverence in the final disposal of the *naterari*. When I suggested chopping it up for firewood I was made to feel that this was rather a bad joke. In the inland village it is put aside in the outskirts of the bush, sometimes with a small platform close by for a continuation of the food offerings, and there allowed to decay. On the River Opi it is placed, with other paraphernalia of the dance, upon a raft; with some little ceremony this raft is guided into midstream and released to follow its unattended course toward the sea. Sometimes the *naterari* is stowed away in a house. At any rate, it is not simply thrown away and disregarded. For this two reasons are given: first, that the *sovai*, or spirit, would be angry; second, that the people feel too sorrowful to treat the *naterari* thus.

It is worth referring to the forms or patterns of the tabu-post. The variety is very great, for each example seems to take shape from the individual carver's imagination. There is no such thing as a distinctive clan device; and there are no names for particular patterns. In one village a newly erected *naterari* of an unusually pretentious character had been recently substituted for another of inferior workmanship. The latter, though discarded, had not been destroyed. Both belonged to the same clan and village, and were set up for the same occasion, but they were wholly different in pattern and appearance.

The treatments range from the very simplest of formal designs to somewhat elaborate representations of the human figure. The latter probably throw some light upon the former. For instance, the prevalent device of cutting through the post so as to leave two separate supports may be reminiscent of the obviously human-like legs of more elaborate figures. There are many *naterari* which apparently do not conform to the implied explanation, but nevertheless it may be said that many do show a slight, and others an unmistakable, anthropomorphic character. The accompanying sketches were made at various times and entirely at random. (Fig. 1.)

Enough has been said to show that the *naterari* is very closely associated with the dead man for whom the feast is to be made. I do not remember hearing in so many words that the *naterari* actually represented such and such a dead man; but the fact that the feast is definitely made for the dead man, the care with which the *naterari* is treated, the offerings made to it, the mementoes of the deceased which are attached to it, and the ceremonious way in which it is finally disposed of, would

all lend colour to the suggestion that it is regarded as a representative of the dead, and is, in imagination, identified with him. One could not go so far as to say that it was actually an image of him; but in view of its occasionally striking anthropomorphism, it is not impossible that originally the *naterari* was in reality set up as a crude model of the dead. I may give one illustration to show that this notion, or a similar one, has not been entirely forgotten. In No. iv, Fig. 1, primitively painted on one facet of the post may be seen the figure of a man. The *naterari* was cut out, set up and painted by one Bararipa, pending a feast in honour of his deceased father Komona; and the figure, by Bararipa's word, was a picture of Komona himself.

Another bond between the *naterari* and the dead, viz., that of a common name, will become evident when we have proceeded further.

IV.—The Heratu as Ancestor.

Having described the uses of the *heratu*, I may now endeavour to explain them. The fact of first importance is that the *heratu* of the clan is constantly referred to as "our ancestor." The words used are *evobo* and *ahije*: the former (which in this connection is the usual one) seems always to have the extra connotation of "ancient." The latter may mean either literally "grandfather," or else an ancestor more remote. It is always difficult to determine the proper limits of native categories. *Heratu*, which I have used as synonymous with plant-emblem, would seem with some informants to have a rather more limited application, *i.e.* it refers to the plant-emblem especially *qua* mark of identity; whereas *evobo* is rather a more comprehensive term, covering not only the special plant-emblem ancestor, but the whole march-past of forefathers.

However, the plant-emblem is called an ancestor. When a man is dead and lies awaiting burial, the women may be heard crying to him as the offspring of his *heratu*—"*Asava-jai, Hombiga-jai!*" i.e. "Child of *Asava*, child of *Hombiga!*" the word *jai* being used in every-day speech as we might use the word "piccaninny."

Now, I have many times asked the native what he means by calling the plant-emblem his ancestor. Sometimes he cannot give an answer, but very commonly he can, and then it is always the same: "Our real ancestor," he says, "was a human being, not a tree; *it was a man with a tree-name.*" For once, I believe, our native has given the really true explanation. I will proceed with the evidence for this hypothesis, viz., that the normal *heratu* is a species of plant representing a human ancestor of the same name.

There are certain reasonably authentic incidents in which a human namesake, or, rather, original, of the *heratu* is well remembered. Thus there is a Binandele clan named Yegaboda whose *heratu* is *Watora*, the reed. During their latter migrations these people hid from their enemies among the reeds, and here a baby was born to whom was given, in a very characteristc fashion, the name Watora. In

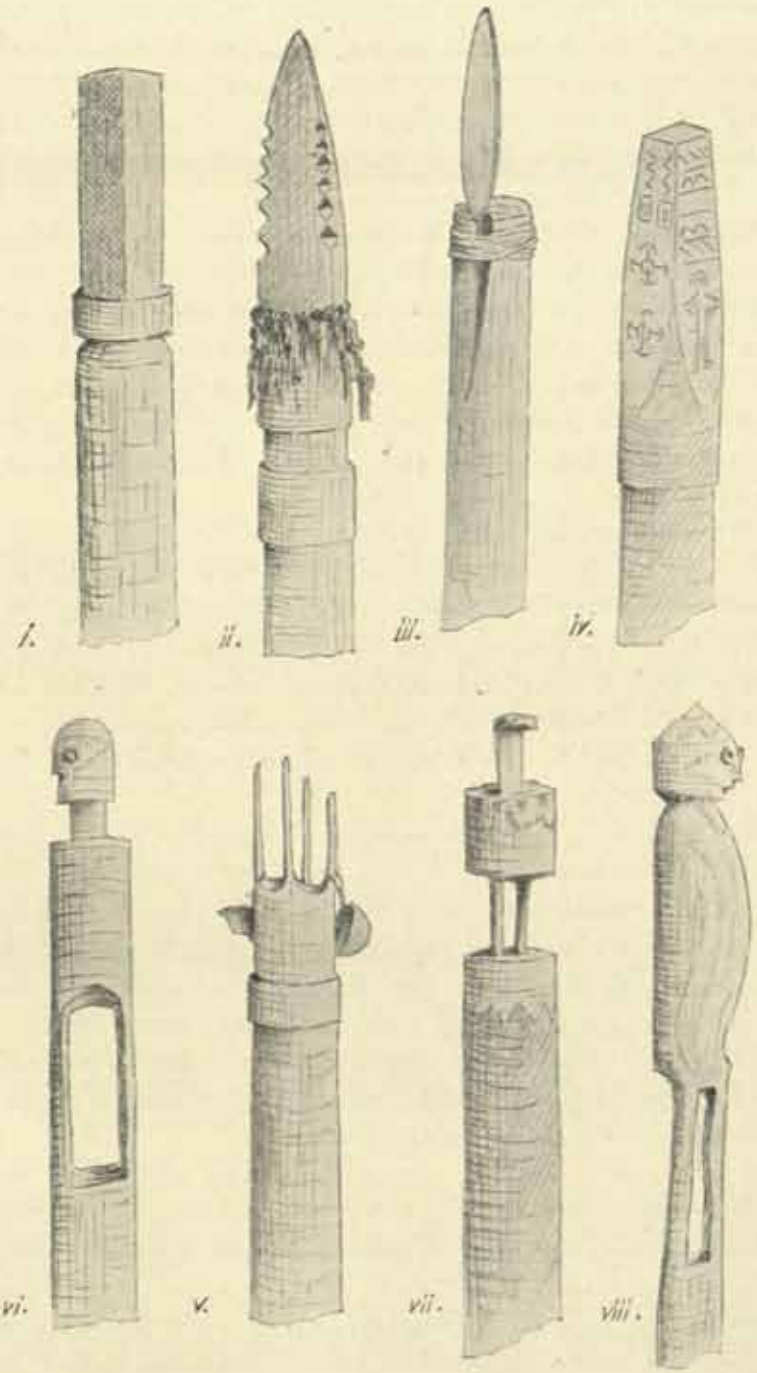


Fig. 1.—Examples of naterari, or tabu-posts (height 3 or 4 feet).

due time this child became the chief man of his clan, which adopted *Watora*, or the reed, as its *heratu*. So we find two widely separated branches of the clan Samanahu, one among the Aiga, the other, an emigrant section, among the Binandele. The Aiga section, still retaining their name of Samanahu, have now the alternative *heratu Asava* and *Hombiga*, evidently acquired subsequently; while the Binandele branch has kept its original *heratu*, the tree *Samana*. Both sections, however, told the same tale of Samana. He was their common ancestor, not a tree, of course, as they affirmed, but a man, and one who, as it chanced, acquired his name from the fact that he was brought to birth under a *Samana* tree.

It happens that in each of these two cases the ancestor has acquired his tree-name in much the same way; and in fact this habit of naming a child from some odd circumstance attending its birth is very common: instance the names Abiga, "Ashes," and Ijita, "The Sun," given for precisely similar reasons. But whatever the origin of the tree-names for human beings, I shall presently have to stress the fact of their extraordinary frequency among the Orokaiva.

To give further instances, a man of the Aiga clan Johari, whose *heratu* is *Saga*, declares that Saga was a man of flesh and bone, and gives, with confidence, a genealogy in which he proves him to be his great-grandfather. Another, an old man with *heratu*, *Okomba*, says that he remembers seeing in his boyhood the real Okomba. In a certain village on the Kumusi the *heratu* is *Juara*, a creeper. This will not make a suitable tabu-post, so the chief, one Euga, cut out a post from the *Euga* tree; and on another occasion used the tree *Hamanya*, because a paternal ancestor had borne the name.

Of individual *heratu* I shall have more to say presently. But an instance may be given here to show how the *heratu* represents the human being with the tree-name. The Pure clan on the Mambare has for its *heratu* the plant *Pura*; but two individuals prove to possess *heratu* of their own, one the tree *Goru*, from his paternal grandfather of the same name, and the other a pair of alternatives, *Simbiri* (the croton), his mother's name, and *Eua* (a kind of bread-fruit ?), his father's name. Instances could be multiplied. From constant questioning I have come to form the opinion that in the very great majority of cases the *heratu* has been adopted in this manner, viz., as a tangible emblem of the synonymous ancestor.

I have four cases in which a contrary explanation was offered. A fugitive section of the Serugahije clan, making its way northward toward the River Mambare, settled for some time in a place of abundant sago, and thereafter abandoned the original *heratu*, *Tuvira*, and adopted *Ambe*, or sago. A clan of the Tain Daware named Giriri had for its original ancestor, one Bono. But they were constantly using a certain hard-wood called *Giriri* for building, and consequently took this for their *heratu* and their clan name. The Gonini clan of the Tain Daware have for their *heratu*, *Gonini*, and occupy four villages. In one of these, Sivariri, there is growing a large tree of the same name, and its inhabitants have taken this species

(*Sivariri*) for their *heratu*. The fourth instance is that of the Binandele clan Diriu. These people, who long ago lived on the Kumusi, were fishing in a small creek when the body of a blue pigeon (*Diriu*) came floating down. They accordingly named the creek Diriu, and, it would appear, adopted the name for themselves and their *heratu*. Though the clan was long ago driven out by the Aiga, this same creek and the adjacent village are still known as Dirou, a circumstance which gives a colour of truth to the legend.

These four cases, however, are not typical. The usual explanation is the one I have given above. In many cases, of course, no explanation whatever was forthcoming. On the whole it may well be surprising that the native should have so often been able to suggest a plausible origin for one of his customs. After some acquaintance with the Orokaiva, one may safely say that, although of a highly imaginative nature, he is not such a fool as really to believe himself descended from a tree.

V.—The Origin of Clan Names.

It must be remembered that these natives have a habit of identifying themselves by their father's,[1] or their grandfather's, or their clan's names as much as by their own. When the fortunate hunter drives his spear into the pig, he shouts, not his own name, but such a phrase as *Kaiepa-tahije*—"Grandson of Kaiepa," or *Kaiepa-ta-bijari*—"Begotten of Kaiepa," or perhaps he will use his clan name, *Jagasi-tahije*[2]—"Descendant of the Jagasi." So also at a feast or a ceremony, or a mustering of the neighbourhood for some warlike demonstration, when from different directions the clans come pouring into some central village, each contingent will arrive in single file led by its chief man, and those who are already assembled will greet them with shouts and say, "Here come the followers of Embuja," or "the followers of Tembari"—whoever the leader may be.

All the underlings of any particular old warrior are called (in the Sangara dialect) *tekahoka*, his "following"; they are in fact collectively known by his name. The nearest equivalent in this language to our word "chief" is *embo-javoari*, "the man who gives the name," *i.e.* the man whose name will serve to identify all his followers. A similar expression is used in Wasida to signify a leader of a group, *embo-peni-javo*, literally "man-big-name."

It will be seen how readily in this simple and patriarchal organization the group may take its collective name from the leader or patriarch. Further, one may be surprised on asking who is the *embo-javoari* of a certain group to be given the name of a man who is dead. Chieftainship among the Orokaiva is so rudimentary that a successor may not yet, so to speak, have taken shape. But that does not matter.

[1] "Father's" in the classificatory sense. Sometimes the maternal uncle's name is used.

[2] *Ahije* is a reciprocal term—grandparent or ancestor on the one hand, grandson or descendant on the other.

The group is content to be known as the followers of the dead man. This latter is indeed a very common phase. The clan takes its name from a leader alive or dead; if he be a distinguished man his name will live after him as the collective name of his descendants. As the process of clan disintegration proceeds the small bodies which split off will take names of their own, though perhaps retaining as well the original and more general name of the parent clan. Thus we find between the Opi and Kumusi rivers two Aiga clans, Serugahije and Samanahu, occupying respective ends of the same village. With two other clans they form a little group known as Hani. What is the origin or meaning of the name Hani no informant could tell me; but Serugahije was admitted to be the first of the clans, from which the others had branched off; and this clan had been founded by one Seruga, an emigrant from the Kumusi to these parts. The clan Samanahu, already mentioned, had been founded by Samana, who, it would appear, was originally a Serugahije man.

This habit of naming the clan after its leader or ancestor is not, however, universal. I propose to examine a series of clans—as complete as I could make it—of the Aiga tribe. The terminations of the clan names will require a note. *Ahije* means "descendant"; *uhu* means literally and somewhat picturesquely "the trunk of a tree," much as we should say "stock"; *embo* means "man"; *aha* may mean "mother," as it does in one Orokaiva dialect, though not in that of the Aiga; *-ta* is simply an associative or possessive suffix.

(1) There is first a class of local names which more or less explain themselves:—

Clan Name.	*Meaning.*	*Heratu.*
Angerihani ..	(*angeri* means "beyond, over yonder"; *hani* may mean "friends, comrades," or, possibly, "tree branch")	*Isuga, Soriho.*
Angeriuhu ..	.. ..	*Potana, Hamana.*
Autembo	(*aute* means the "bush, forest") ..	*Saga.*
Poita-uhu ..	(Poita, name of a certain creek) ..	*Boruga.*[1]
Seva-uhu ..	(*sevahi*, the "bush")	*Siruga, Seki and Tanderi.*
Tiri-Humusi ..	(*tiri*, "hills," Humusi, the River Kumusi)	*Hambora, Garava.*

(2) There is one solitary bird-name of which I can give no explanation:—

Jega-Karenga ..	(Jega (?); *Karenga*, parrot) ..	?

[1] The same *heratu* may belong to apparently unrelated clans.

(3) There is, thirdly, a miscellaneous class of names, nicknames, ancestral names, and possibly tree names, which I cannot attempt to explain, but will only put down for the sake of making the list complete :—

Clan Name.	*Heratu.*
Airahije	*Horo.*
Ata	?
Evija	*Isuga.*
Horipahije	*Ongo.*
Jarutuhu	*Embara, Kitikukumi, Ehe.*
Johari	*Saga.*
Koariahije	*Tandevi.*
Komahije	*Tutengi.*
Ngiriahije	*Boruga.*[1]

(4) Lastly, there is a long list in which the clan name is that of a tree or plant :—

Ango-uhu	?
Aseahije	*Pogera, Ase.*
Borugaha	*Boruga.*[1]
Bove	*Simbiri.*
Eugahu	*Euga*
Honia-Noduru	(? a split stick).
Hojavahije	*Hojava.*
Isugahije	*Isuga.*
Jautiahije	*Jauti.*
Jega-Juaraha	*Juara.*
Koropahije	*Tutengi, Tambara.*
Ongoahije	*Ongo.*
Paingoahije	*Paingo.*
Samanahu	*Asava, Hombiga.*
Samberota	*Sambi* (a squashed stick).
Sauhu	*Sahu.*
Seheo-Buje	*Buje.*
Sekihu	*Seki.*
Serugahije	*Tuvira, Ehe-jakara, Komusu.*
Simborota	*Simboro, Ominga, Atu, Boruga.*
Soriahije	*Soriho.*

It seems probable that the majority of this last category, besides being names of trees or plants, are names of ancestors as well. Now the *heratu* of the clan is at once plant and "ancestor," and in the typical instances the names of clan and *heratu*

[1] The same *heratu* may belong to apparently unrelated clans.

will correspond. By comparing the second column (*heratu*) with the first (clans) in the preceding table, we will see that this is so in a large percentage of cases. On the whole, I think the clan and its *heratu* come into being simultaneously and in this manner: an individual secedes from the parent clan and his family grows into an independent clan, taking its name from him and adopting for its emblem the plant which bears the same name as, or a name similar to, its founders.

The exceptions (*i.e.* where the clan name and *heratu* do not correspond) may be explained in several ways. (1) A sub-clan may retain the old *heratu* but take a new name. So the Autembo are a fugitive section of the Johari who took to the bush (*aute*) in order to avoid reprisals for a murder. While they are known as Autembo they have kept the original *heratu* of the Johari, viz., *Saga*. (2) A local branch of a clan may keep its original clan name but adopt a distinctive *heratu*. A migrant section of the Simborota still call themselves Simborota, but have assumed *Boruga* as their *heratu*. (3) A clan may discard an old *heratu* and take the synonymous plant of a new leader. Thus a very old man tells me his *heratu* was formerly *Tumena* (a variety of taro), but nowadays it is *Bari*, because his son Barigi, an ex-sergeant of Native Police (made famous by C. A. W. Monckton) has taken his place as leader of the clan.

VI.—Plant Names for Human Beings.

I mentioned at an earlier stage the frequency with which plant names are used for human beings among the Orokaiva. It is time that this statement should be substantiated. In the first place, with a people of the forest, depending on its products for so many purposes, and with such a familiar and intimate knowledge of it multifarious flora as no European save a botanist could possess, it may not be altogether surprising that they should draw upon this inexhaustible store for their own personal names.

Name-giving customs among the Orokaiva are an interesting subject in themselves, though they cannot be treated at any length in this paper. Suffice it to say that, besides the formal names passed on by god-fathers and god-mothers, there are countless nick-names (as we should call them) originating from some chance circumstance of birth or early youth. The formal names appear to be as odd as the others, and have no doubt arisen in the same haphazard manner. Most personal names permit of interpretation, and provided their owners or their owners' parents are present, the interpretation will often recall some homely anecdote of childhood. But, however they may have arisen, plant names form a large proportion of them. In a random list (two series of men who submitted themselves for physical measurement) we find such names as Half-cooked, Shell, Lizard, Pus, Cry-baby, to Stretch, to Miss with the Spear, Wet, Roasted, and so on. But by far the largest category is that of plant names. In a list of 57 names (13 of which were not interpretable they added up to 15 or 26 per cent.

VII.—The Heratu as Badge.

(*a*) *The Use of Nearly Synonymous Heratu.*

As only a proportion of men have actual plant names, it is obvious that not everyone can have a synonymous *heratu*. There is, however, an important consideration which does much to remove this difficulty. Although a man has not a plant name, nevertheless some plant with a name *resembling* his will be made to stand for him. The instance of the altered *heratu*, *Bari* (p. 420) is a case in point. *Barigi*, as far as I know, is not the name of a plant; but *Bari* is a sufficient approximation, and will do for the *heratu* of Barigi's clan. So we have *Pura* as *heratu* for the clan Pure, and *Anderi* for the clan Andere, their owners laying stress on the difference in pronunciation. Again, for the clan Samberota (named from the plant *Sambero*), we have *Sambi*, the flattened stick (*vide* p. 409).

[We even find a closely related variety of plant made to do service for the proper *heratu*, though it has an entirely different name. Thus the tree *Benoma* may be a substitute for *Samana* of the Samanahu (Binandele branch); *Omba* for *Piri* of Piri-bijari; *Pogera* for *Ase* (both varieties of Job's Tears) of the Aseahije.]

What with the frequent occurrence of plant names and this convenient possibility of using as *heratu* a plant that is only nearly synonymous, it is hardly impossible that any and every Orokaiva should have his plant-emblem.

(*b*) *The Individual Heratu.*

This brings us to the individual plant-emblem, which has already been touched on here and there. The matter does not require a long consideration, for it will be obvious that the principle of the individual plant-emblem will be precisely the same as that of the clan plant-emblem; indeed, in all typical cases the latter has come into being as an individual emblem. One sometimes finds a man living as a member of a clan and owning its *heratu*, but at the same time boasting a private sign for himself. We have seen a man Euga of the Jega-Juaraha (*heratu*, *Juara*) setting up a *naterari* of *Euga* wood (*vide* p. 416); and two members of the Pure clan distinguishing themselves by the synonymous plants of their grandparents or parents. In the Binandele clan of Diriu is a man Taimi, who, besides the feather of the blue pigeon (*Diriu*), has a *heratu* of his own, viz., *tai*, a root. No doubt the pigeon feather is not always at hand; but the root of any plant placed conspicuously on the track is enough to show his friends that Taimi has passed by.

(*c*) *Summary on the Heratu as a Badge.*

It remains to say something more of the *heratu* as a badge or identity-token, and lastly to discuss its bearing on the question of totemism.

Of the three main uses of the *heratu* previously described, viz. (1) as an Identity-token; (2) as a Mark of Individual Abstinence; (3) as the *naterari*, or Village Tabu-post, the last will seem tolerably clear. The *naterari* stands as a symbol of the dead

man in whose behalf the tabu is imposed. Formerly it may have been something more than a formal symbol of the dead—in fact, a crude image. This association between the wooden post and the dead man which it represents is strengthened by using his particular namesake tree; then, besides other associations, the two have this important bond between them—a common name.

The second use remains somewhat obscure, though it has this in common with that of the *naterari*, that in both the *heratu* is really a tabu sign.

The first use, however, is the fundamental one. The *heratu* is a badge; and it is a badge by virtue of the fact that it bears the same name (or nearly the same name) as the man or men it represents. We may therefore call it a synonymous badge. A man named Waiwa once explained the matter to me thus: "You white men," he said, "have your books. If you went to your friend's garden and took his taro, you would write your name in the book, and when he came and saw your name there he would be content, knowing that his taro had been taken by a friend. But the New Guinea man cannot write his name on paper, so he leaves his name behind him in another fashion. I should look about me," he said, "and find some tree with a name like 'Waiwa,' break off a branch of it, and leave it by the broken taro tops. Then my friend, the owner of the garden, would say, 'Aha! Waiwa is welcome tomy taro.'"

In the article referred to at the beginning of this paper, viz., "The Movements of the Tribes of the Mambare Division of Northern Papua" (Chinnery and Beaver), there is an interesting anecdote, still well remembered in the region of which it is told. The Binandele, led by a man Waia, had been raiding on the river Gira, and searching for their real enemies had in error attacked the Yema tribe, killed the chief, and captured a youth, Jiani. For this unhappy mistake Waia expresses his sorrow, and desires that Kewatai, the absent son of the chief, be sent on a visit to the Binandele country in order to effect reconciliation and alliance.

> "Then Waia said, 'My name is Waia; can you remember this name?' Jiani replied, 'Yes; we call this tree (pointing to a certain tree called Warawa in Binandele) Waia.' The chief then cut off a piece of the bark, and gave it to Jiani for remembrance, and told him to put it in Kewatai's house, and to tell him that he (Waia) was sorry."

When Kewatai does visit the Binandele country, it is only by remembering the name of Waia that he saves himself from being eaten.

In such uses as these the *heratu* is something more primitive than a pictograph—it is a very material symbol, a sort of vegetable signature.

VIII.—The Heratu as Totem.

Throughout this paper I have avoided the word "totem," using in preference the non-committal, if awkward, phrase, "plant-emblem." I may now review the evidence which might have justified the use of the former term.

(1) The *heratu* is normally connected with a definite social group, viz., the clan (though sometimes with the individual and his immediate family).

(2) The clan is usually exogamous in practice, though by no means strictly so (p. 407).

(3) The clan commonly, in the typical case always, takes its name from the *heratu*, or, more strictly, is synonymous with the *heratu* (*vide* (5)).

(4) The clan uses its *heratu* first and foremost as a badge.

(5) The *heratu* is called an ancestor (though the Orokaiva does not really believe that his ancestor can be a plant or tree).

Thus far, it would seem, the *heratu* has conformed very nearly to the tenets of totemism. It remains to be considered whether the clan possesses any magico-religious sentiment for its *heratu* such as typically unites the group and its totem.

The evidence is here somewhat conflicting. Generally speaking, the plant-emblem (except as *naterari*) is treated with no semblance of respect or reverence. In clearing the bush a man will fell his *heratu*-tree without a thought; if it bear edible fruit, like *Junga*, the wild fig, he will eat it; if it be, as in one case it is, *Ambe* or sago, he will not forswear one of his principal means of subsistence. There is a large clan, the Umondaha, one of whose *heratu* is nothing more nor less than water.

In one or two instances, however, informants have claimed that they will not cut down their own tree; but such are distinctly exceptional. No case has come to light of a useful *heratu* which its owner will not use. With the rare bird-*heratu* the case is almost the same. A Diriu man, ex-constable, avers that he has shot many a *Diriu* (blue pigeon) for his master, and would be only too glad to shoot and eat another if I will lend him a gun. Perhaps at first he was like the other who "sighed as a member of the cockatoo totem but obeyed as a policeman," but his scruples are long since gone, if he ever had any. A man whose subsidiary *heratu* is the bird *Kombu*, says that, while he would not hesitate to kill it (if he could get near it) he would still refrain from eating it. It is apparently for reasons of sentiment alone that he would not eat it, for he declares there would be no evil effects upon him if he did (as I believe he might) yield to the temptation.

On the other hand, however, a man of the Bangai-unji, or children of the eagle-hawk, who use one of its speckled feathers for their mark, avers that he would neither kill nor eat the bird; and further, volunteers that if a *Bangai* fledgling, being caught and kept in the village, were to die, it would not be eaten or thrown away, but buried. Lastly, there is one isolated note which may have some significance. The bird *Hororo* (mentioned on p. 409) belongs especially to a certain man Erupa. Should its cry be heard near the village, the people would say, "Erupa will be successful in the hunt to-day."

In passing I may mention a point of some interest. Among the Orokaiva there are certain strict rules of etiquette between relatives by marriage (particularly between the man and his parents-in-law), exemplified by a very strict name-avoidance.

Now, although a man will cut down his own *heratu*-tree without mercy, he will hesitate to do the same with a tree that happens to bear the name of his *atovo* or *imboti*, i.e. his father-in-law or his mother-in-law, and may request one of his companions in the clearing to fell this particular tree for him. Similarly he will not eat any food, animal or vegetable, which happens to be synonymous with either of his parents-in-law. Now this rule is based on sentiment—there are no magico-religious sanctions to it—and where a similar tabu is observed with regard to the *heratu*, we may probably assume that this is likewise no more than a sentimental avoidance.

The foregoing evidence has been set down for what it is worth. On the whole, there would appear to be no very special regard for the *heratu*, though here and there will crop up a strong manifestation of such regard. It may not be surprising that this is relatively more marked in the few cases of birds than in those of the usual botanic *heratu*, because the former, with their more definite personality, are in themselves likelier objects of regard than the latter.

In fine, it is of little consequence whether the plant-emblem be called a totem or not; it will be obvious that it is very much like one. There is in my own mind little doubt as to how the system came into being. The *heratu* is a synonymous badge for the leader of the clan, and through him for the group to which he gives his name. It has been maintained that totemism was evolved in more ways than one. This, at least, is one feasible way. More thorough-going totems may well enough have sprung, like the plant-emblems of the Orokaiva, not from communal nicknames, but from names, and furthermore, from individual names. The thesis of the present paper may be summarized very briefly: the clan *heratu* originates from the individual *heratu* of its leader or ancestor, and the individual *heratu* is some plant which serves as a token of identity because it bears the name of its owner.



FIG. 1.—EXAMPLES OF HERATU OR PLANT-EMBLEMS.



FIG. 2.—A NATERARI OR VILLAGE TABU-POST, UNDER A SHELTER.

PLANT-EMBLEMS AMONG THE OROKAIVA.

AUA ISLAND: ETHNOGRAPHICAL AND SOCIOLOGICAL FEATURES OF A SOUTH SEA PAGAN SOCIETY.

[With Plates XXXIII–XXXVIII.]

By George Lane Fox Pitt-Rivers.

1. Introductory and Historical.

Perhaps few regions of the Pacific invite attention to a greater number of unsolved ethnological problems or tempt one more to theorize on the origin and wanderings of peoples than the Bismarck Archipelago, the group lying north-east of New Guinea, which includes New Britain, New Ireland, Lavongai (New Hanover), the Admiralty Islands, and a number of outlying groups composed of islands ranging in size from New Britain to tiny coral atolls. Some rise precipitously out of the sea to heights of several thousand feet, others are flat coral reefs, sometimes built on submerged volcanoes that scarcely rise a few feet above sea-level.

These islands are inhabited by many different racial stocks and racial blends, broadly distinguished as Papuan, Melanesian, Polynesian, and Micronesian.

If we follow a commonly held and plausible theory we may suppose that shortly before our Era a Caucasoid Proto-Polynesian race, migrating from Eastern India, moved eastwards into the Malay Archipelago, where they mingled with Proto-Malayans who had migrated south from the mainland of Asia. When this Malayo-Polynesian stock migrated further east into the present home of the Polynesian peoples they are likely to have taken a route by Borneo and the Celebes, north of New Guinea and the Bismarck Archipelago. As they skirted the Bismarck Archipelago, detached elements, either wearied of travel or blown south off their course, may have settled on some of the northern islands of the Archipelago, forming at different times little Malayo-Polynesian pockets, sometimes preserving in greater purity their stock, and sometimes becoming absorbed by the Melanesian or still earlier Papuasian inhabitants.

In some such way we must try to account for the inhabitants of two small coral islands that lie north-west of the Archipelago. The inhabitants of these two islands, Wuwuloo and Aua, present a marked contrast in physical appearance, culture, and language, to the natives of surrounding groups and islands.

Aua, the subject of our study, lies about twenty miles to the north-east of her sister island, Wuwuloo, more familiarly known as Maty Island. On most maps the

smaller and less well-known island loses her identity, and the two are together shown as the Maty Islands.

Aua is a flat low-lying island (lat. 1° 42′ S., long. 142° 50′ E.), about two miles across from east to west, with a total area of 3,380 acres. Her palm-fringed shore is surrounded by coral reefs, which rise precipitously out of such deep water that it is impossible to anchor off them.

Of the two islands, Aua presented in 1921, the year of my visit, a better field for ethnographical investigation than her sister island. Until a few years ago her natives had preserved with a greater freedom from European contamination their culture, their language, and their stock. The solitary pioneer white settler, living in the bosom of his native family, can be absolved from the charge of contributing to that fatal disturbance of their cultural equilibrium at the hands of missionary, trader, planter or official, which has brought about the depopulation of so many islands and extinguished so many native cultures in the Pacific. Not that Aua had not suffered, like almost every other island in the Archipelago, from that complex of causes initiated by the European invasion. She, too, had suffered from the shock of contact with a strange, irresistible white race, whose members had made occasional short predatory landings on her shores, which served to remind the natives of their impotence to resist a power ever threatening to overwhelm them. Thus, while they had so far avoided an invasion of alien indentured native labourers under white masters, they seemed to suffer from a prescience of the fate that was in store for them. Up to the time of my visit the Aua islanders knew little of the world beyond the shores of Wuwuloo, they knew no language but their own, and their blood remained almost untouched by foreign admixture, either European or from the surrounding Melanesian groups. Here, then, we had an opportunity of studying a highly developed Stone-Age culture, as yet but slightly contaminated by direct contact with Europeans.

The two islands, Aua and Wuwuloo, were discovered in 1545 by Ortis de Retes, the Spanish navigator, who named New Guinea and sailed in the *San Juan* under the orders of Philip II. The earliest mention of these islands occurs as a brief reference to their discovery by de Retes in the chronicle of A. de Herrera, published at Madrid in 1615.

On 19th September, 1767, Carteret, the British navigator sailing in the *Swallow*, sighted Aua, and named her Durour, after one of his ship's officers.

The same day he visited Wuwuloo and noted the similarity in the design of the dug-out canoes from the two islands (Pl. XXXIII, Fig. 1). During this voyage he discovered Ninigo (Exchequer Group).

In 1817 Captain Bristow, with Sir Andrew Hammond, landed at Wuwuloo, which he named Tiger Island on account of the ferocious character of the natives.

In the 'nineties the German New Guinea Company started to establish trading stations in the Western Islands, and in 1893 sent a recruiting schooner, *Isabel*,

round the Archipelago. She visited Wuwuloo and Aua, where the Danish skipper obtained a number of trophies and curios; some of these eventually found their way to Berlin and the British Museum.

The next visitor to these islands, Captain Andersen, brought a Dane, Schielkopf by name, who tried to establish a trading station for copra and shell at Wuwuloo. His roughness with the natives led to his being murdered and his station burned down within three weeks of his landing.

Parkinson, the author of *Dreizig Jahre in der Süd-See*, paid a brief visit to the two islands in 1899, and devoted seventeen pages, of not quite accurate description, to them in his book.

A trading station was eventually established on Wuwuloo in 1900. A plantation was started and a number of indentured natives from other districts were sent to it. Aua, owing to its smaller size and smaller commercial attraction, escaped a similar large invasion, though in 1903 two young Germans with twelve New Ireland and Buka boys were sent to establish a trading station there. The names of these two were Matthies and Reimers. The natives received them with suspicion, and very soon told them to leave the island.

Then ensued a period of desultory warfare in which the natives were on two occasions beaten off the station with rifle fire.

After this nothing more happened until Matthies, who by this time was down with malaria, was taken away by a calling schooner. During his absence his partner, Reimers, was suddenly attacked by the natives and killed and his body thrown into the sea.

When Matthies eventually returned with a handful of armed New Britain boys he found that the whole of one clan district, Bäarufu, which had led the war against the white men, had taken to their big war canoes and had sailed for the Ninigo Islands. The total population of the island must at that time have been close upon 2,000 natives. The Bäarufu clan, who sailed away to escape the revenge of the white men, numbered about 900 men, women, and children.

The expedition succeeded in reaching the tiny island of Manu (Alison Island), but after a few days left it, owing to lack of food. They were caught in a storm; between 600 and 700 perished in the sea. Only four canoes escaped; two of these, containing about 100 natives, succeeded in reaching Wuwuloo, and two canoes, containing 10 men and 65 women and children, eventually found their way back to Aua.

After this tragedy the natives gradually became reconciled to Matthies, who had learnt their language, and gave him in marriage the last big chief's (*puala*) daughter. For eighteen years this solitary white man lived on the island like a native chief, on the very best terms with the people.

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The next visitor to stay was a Swedish writer, Count Mörner.[1] He spent in 1913 some months in the Western Islands, of which one week was spent on Aua. He translated some of the folk-lore of the island into Swedish.

The natives of Aua and Wuwuloo are usually referred to as Micronesians. Parkinson, in using that term, describes them as a branch of the Malayo-Polynesian race. In their folk-lore they have apparently no tradition of any migration nor of any former racial home which might suggest that they migrated south from Micronesia. We may avoid confusion by classifying them loosely as derived from Proto-Malayo-Polynesian stock. Parkinson's description of their physical appearance gives a vivid enough idea of their characteristics. He writes: "I shall not be far wrong if I identify the people of the two islands as a branch of the far-flung South Sea stock of the Malayo-Polynesian race, and moreover that part of it which stands nearest to what we generally call 'Micronesian.' The complexion is that of the Samoan—a light brown—the hair is straight, or crisp or curly; the physiognomy is pleasing, and in a number of individuals of a regularity which could claim comparison with our own European standards of beauty. The men are slightly built, and of middle height; the women are in all respects smaller, but have usually, that is to say in their youth, shapely, well-rounded figures and well-formed, exceptionally neat, hands and feet.[2] (Pl. XXXIV, Figs. 1 and 2.)

"The face is distinguished chiefly by the slight prominence of the cheek-bones and the oblique setting of the eyes. Some of the natives have these characteristics so well marked that one might easily mistake them for Malays.

"The eyes are lively and intelligent, and the whole appearance betokens a high grade of intellectual capacity. The movements are quick, and the speech is accentuated by the gestures of the arms and hands."

While generally well developed from the waist upwards, they tend to fall away below, legs and thighs being poorly developed. The women are narrow-hipped. A series of measurements taken of 32 adult males and 32 adult females gave me the average height of males, 5 feet 1¾ inches, females 4 feet 10½ inches.

The language is allied to the Polynesian root language. There are slight dialectical differences in the three Aua districts. Many words are variants of Samoan words, *e.g.* a species of swamp *taro*, somewhat similar to the plant known at Aua as *wula*, is known in Nuguria and Nukumanu as *pulaka*, and in Samoa as *pula*. Fish in Aua and Wuwuloo is *nia*, and in Samoa *ia*. In Aua an ear is *alia*, in Samoa *talinga*. A canoe in Aua is *va*, and in Samoa *vāa*.

2. SOCIAL SYSTEM.

The island was divided into three sectors—Oala in the North-West, Laroaro in the South-West, and Bäarufu in the East, each with its complement of little

[1] Mörner, *Arafis Tropicka Ar.*, Stockholm, 1914.

[2] "Gut ausgebildete extremitäten und ungemein zierliche Hände und Füsse."

straggling hamlets along the shore. Each district had its own *puala* or head chief. These *pualas* lived in patriarchal fashion with their wives and families in their hamlets or *puala* stations. (Fig. 1.)

Unlike the social organization of the commoners, which was matrilocal and matrilineal, the *puala* chieftainship was hereditary in strict line of descent from father to son. The *puala*-ship became extinct when there was no son to succeed his father. In former times, when *pualas* had many wives, there was seldom a lack of heirs. After the disaster of 1904 and the extinction of the powerful Bāarufu clan, the population rapidly declined and the *puala* chieftainship in the three districts became extinct. The last and most powerful of the *pualas* was the chief of the

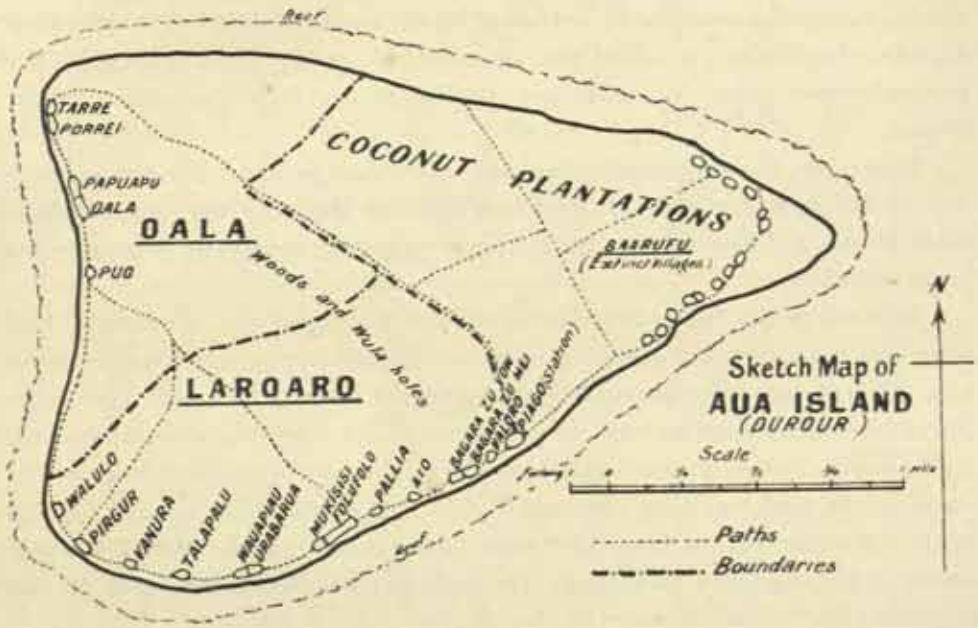


FIG. 1.—SKETCH MAP OF AUA ISLAND.

Bāarufu sector, who on his death-bed had ordered the killing of the white trader, which lead to the disaster of 1904. The Bāarufu settlement, which is now extinct, was the most populous and its people the most warlike on the island. The houses have disappeared. Nothing now remains except the water-holes. Formerly it boasted of the finest *puala* house on the island, with carved rafters inside.

Under the *puala* or supreme chief each hamlet had over it a minor executive chief called *pāavi*. Though also a hereditary caste, succession in the *pāavi* line was less strict, neither was descent so strictly patrilineal as among the *pualas*, but sometimes followed the matrilineal system of the commoners. Claims to succession were also less dependent on descent than on power, popularity, and expertness in the arts of peace and war. The final decision in choosing a successor to the deceased *pāavi*

would formerly have rested with the *puala*, who would, in place of choosing the direct heir of a *pāavi*, often endorse the claims of some prominent member of a class of technical experts or craftsmen known as *anu-anu*. This would occur particularly when the heir to the *pāavi* was considered too young or too weak or unpopular.

When a matter of great importance was to be decided, or upon the death of a chief, a council of the leading men would be called. Little accurate information was obtained about the details and procedure of these councils. Native informants were very reticent about them. One took place upon the death of an old *pāavi* soon after my landing. Matters relating to the obsequies and the succession were decided.

The *anu-anu* constitute a class of skilled experts in the various arts and crafts of war and peace; they acted as warrior leaders in the field, as makers of all the best spears and fighting weapons, as builders of houses and of canoes, and as agricultural experts. They formed a class of great influence and prestige in the community, they accepted orders from the chief, and directed labour in all communal undertakings.

There were formerly female magicians or witches (*funari*). The last surviving one, an old woman of seventy, died just after my arrival. They were consulted about illness, and foretold the future. Their magic was apparently invariably of a beneficent nature.

Descent among the commoners is strictly matrilineal and matrilocal. Each matrilocal family owns a group of houses of different types, each type dedicated to a different use. The principal or living-houses were the *vanioa*. These alone contained cooking stone hearths; here all the cooking is done in neat little pandanus-leaf baskets. The *vanioa* also contain a square wooden bed on short legs, a smoke-box where sharks' flesh was dried and smoked, and a long bench running along the side of the hut. The *uva*, or unmarried boys' house, usually smaller than the others, contained nothing but a plank bed. The *rufu*, or unmarried girls' houses, are distinguished by the high entrance reached by two or three pile steps. These houses sometimes contained smoke-boxes. They were also used for storing the fighting spears. The same word *rufu* is used to denote equally the unmarried girls' house or the village as a whole. Each group of houses would also have one or more open-sided shelters or bush huts (*toro*), and at least one provisions-store on piles (*lcer*). By the shore are situated the canoe-houses (*palc*) (Fig. 2).

Among the commoners, and sometimes, though not invariably, among the *pāavi*, a woman after marriage remains with her own family, who assign to her, if possible, one of the *vanioa*. The husband after marriage also remains with his own, that is his mother's, family. In his wife's house he is only a visitor. He neither lives nor eats in his wife's house.

All property, except in the case of chiefs, passes by female heritage. While this system of mother-right influences kinship, descent and property, it does not impair the executive of the men in their use of property. Family property, such as

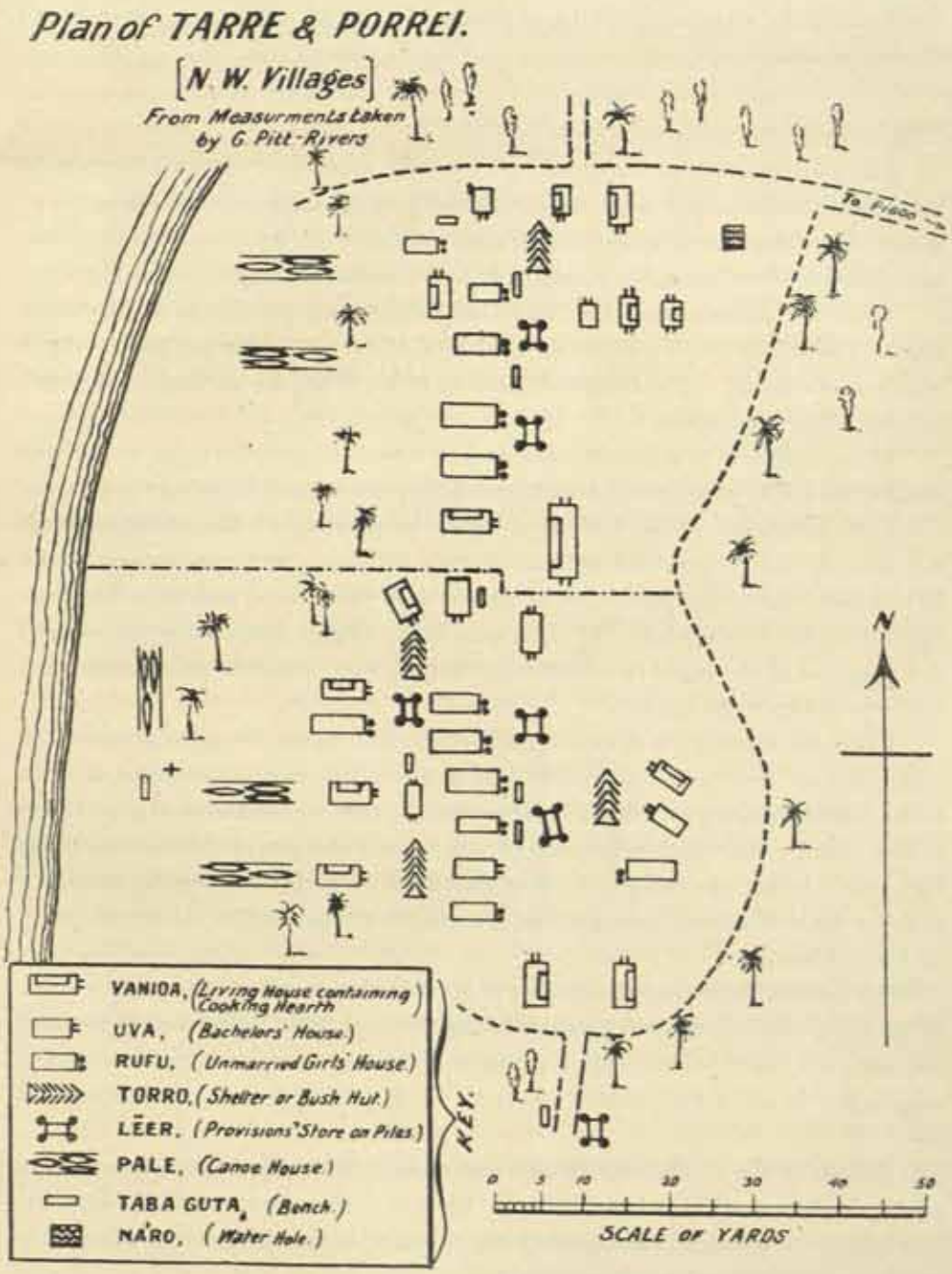


FIG. 2.—PLAN OF TARRE AND PORREI.

coconut plantations, bread-fruit trees, *wula*-holes, fish-holes on the coral reefs, and canoes, in fact everything outside the woman's domain—the home, though held in the name of the matrilineal family, are under the control of the men, the mother's brother or eldest son.

3. MARRIAGE.

Aua marriages are accompanied by very little ceremony; there are no rites, no long-drawn-out feastings, nor ceremonious entry of the bride into the bridegroom's house. Courtship, as we understand it, does not exist. Every unmarried girl is free to receive her lover, but the relationship does not necessarily imply a desire to marry.

After due consideration and ample opportunity of putting to the test the marital qualities of his prospective wife, the prospective husband broaches the subject with his own family. The merits or demerits of his choice are thoroughly thrashed out over betel-nut and lime.

If the verdict is in favour of the match, a feast-dish (*potea*) is made and carried along to the family of the girl. Acceptance of the *potea* by the girl's family constitutes a formal ratification of the marriage. If the proposal is not favourably received, the *potea* would be returned without further comment, and negotiations would be at an end unless the *pāavi's*, or in the old days the *puala's*, assistance had been enlisted on the boy's behalf. If the young man's family had secured the support and approval of the *pāavi* to a match the latter's wish would be promulgated, and that would decide the matter.

When the marriage is agreed upon the question of the accommodation of the couple arises. Aua marriage is matrilocal in a peculiar way. The husband sleeps in the house provided by his wife's family, but he still retains his own home in his mother's family, his female relatives still cook for him and provide his mid-day meal. The wife, whether she belongs to another village or to her husband's, remains a member of her own family, who provide, if available, a *vanioa* for her, where she brings up her children.

Her husband never becomes master of his wife's house, where he is only a visitor. He is seldom seen in his wife's house during the day, but he may join her for the evening meal, and he may bring presents of *wula* (swamp *taro*) or fish he has caught, but it is not his concern who eats it; in his wife's house he has little to say.

A man works in his own family *wula*-holes. When he marries, however, he usually works an additional *wula*-hole for his wife; this would not belong to his wife's family. When he has reported his intention of marrying to his *pāavi* he is given an additional *wula*-hole to work.

It is very rarely that a commoner ever brings his wife to his own house, though he may temporarily borrow her assistance to help his female relatives in preparing the food for a feast or for some special occasion; should he bring his wife to his house

for any other reason it would be keenly resented by the female portion of his own family. I learnt of only one instance where such a thing had been done recently, but the arrangement did not last long. Tavi-Tavi, of the village of Tarre, had shown favour to her male admirers in a way that incensed her husband, Rena, who, in order to keep a closer eye on her, brought her to his own village, Papuapu, much to the indignation of his sisters and his aunt. In less than four months Tavi-Tavi returned to Tarre again.

In contrast to the matrilocal and matrilineal system of the commoners, *pualas'* wives and, less invariably, the wives of *pāavis* lived in their husband's house or in the *puala's* hamlet. Only the principal *puala's* wives, in the days before the increasing deficit of women made polygyny impracticable, lived in the *puala* hamlet; a few secondary or additional wives remained in their own villages until their labour was wanted for some special occasion in the *puala* hamlet.

Pāavis tended to follow patrilineal descent like the *pualas*. If the *pāavi's* children were brought up in his mother's village the *pāavi* would send for the son who was to succeed him, when he was of suitable age, and bring him up in his own home; the boy would then inherit his father's as well as his mother's interest.

We find a parallel co-existence of matrilineal and patrilineal kinship in the same community among the Ewe-speaking people of Dahomey, the upper classes adopting the male and the lower the female descent.[1]

Formerly there was another circumstance in which wives were brought to their husband's houses; the men of the powerful Bäarufu district, after an expedition into the Oala or Laroaro districts, would occasionally carry off women and take them back to their own villages. These irregular "marriages by capture" were neither a recognized part of the social system nor of long duration; stolen women were soon allowed to return to their own districts.

Polygyny among the commoners was invariably of the sororial type. A man might simultaneously marry two sisters, who would, of course, inhabit the same house.

Divorce was rare and was marked by little formality. A man merely intimated his intention of not returning to his wife's house, reporting the matter to the *pāavi*. Similarly a woman could divorce herself by telling her husband she did not want him back again.

It is taboo for a man to mention the name of, or converse with, his wife's mother; similarly a woman cannot mention the name of, or converse with, her husband's father.

There is no exogamy: a man may marry any woman not of the first degree of affinity, *i.e.* his mother or his sister. Marriage between a man and his brother's or his sister's daughter is considered quite suitable.

[1] *Cf.* A. B. Ellis, *Ewe-Speaking Peoples*, p. 177.

4. Obsequies and Eschatology.

The death of Luomai, the *pāavi* who ruled over Oala, was an event of great importance to the whole island. When a chief dies his canoes are broken up and the trees in his plantation cut down. Luomai's wrecked canoe, planted in the ground a few yards from where his body lay, remained for many weeks the only memorial to mark the site. (Pl. XXXV.)

The interment took place with very little ceremony. Before sunset on the day of his death the chief was wrapped in a blanket and placed in a shallow grave hastily dug just in front of his canoe-house on the shore. With him were buried two boxes filled with small personal belongings, lime gourds, carved sticks, a few weapons and knives (*afu* and *pulele*) and a few ornaments. In addition to his own personal effects every man and woman in the island brought some object; most of them brought a loin-cloth, which was buried with the *pāavi*. Similarly, when a commoner dies each member of his family brings some object to be buried with him. While the body lies in the house women keep up a continuous wailing, men go off to the chief's plantation and gather quantities of betel-nut and *avoua* (the leaf eaten with betel-nut), which they chew incessantly as they sit about in groups discussing their bereavement.

In the absence of *pualas* Luomi was the most influential *pāavi* of the island; his authority was recognized in Laroaro as well as in the district of Oala. On this account he received certain marks of respect appropriate to a *puala*.

The most sacred objects on the island were the remaining chains of shell (a shell resembling a small cowrie) which were the regalia of the *pualas*. These "*puala* chains" (*tzulai*) were worn only by the wives or daughters of *pualas*. The remaining *tzulai* were carefully preserved by the head *apura*; the *apura* were a secret society to which we shall refer again. These sacred objects were put into the *pāavi's* grave to be removed later. (Pl. XXXVI, Fig. 1.)

After death the spirit of a Aua man or woman joins the habitations of their departed ancestors. Each Aua family has its own appointed place of departed spirits; there the spirits continue to lead an existence very similar to their earthly one. There are many dozens of submarine hamlets inhabited by departed spirits which lie along the reef or at the bottom of the sea off the coasts of Aua and Wuwuloo. Many Aua men have their spirit homes off Wuwuloo, while Wuwuloo men have chosen spots off Aua. Luomai's paradise was off the east point of Wuwuloo. The same types of houses are built in the spirit world, the same type of food eaten, and similar occupations pursued. All become rejuvenated in the spirit world. The women become young and more beautiful and are numerous, food is abundant and easily procured, coconut- and betel-nut-palms supply their needs. The spirit people are continuously being entertained with feastings, songs and dances. Canoes in the spirit world float below the water, bottom uppermost, above the spirit hamlets, so canoeists sit head downwards in their canoes. The

old *funari* (witches) alone do not undergo a rejuvenescence in the spirit world, but although they remain old their magical powers become greatly enhanced. Since the *funari* only acquire their powers on earth as they grow old, and these powers increase with age, it follows that to become young girls again in the after-world would involve a loss of influence.

The spirits of departed *pualas* rule over the spirit world, and often visit the scenes of their earthly glory. Their own *puala*-stations on Aua remain in perpetuity their chief visiting places, and although with the death of a *puala* his houses would be pulled down and others built for his successor, his *lëer* (provisions' house) was preserved. The *lëer* of a long-dead and powerful *puala* remained in Pirgur in Laroaro. Into this food-house, offerings of coconuts, fish and a *potea* (feast-dish) were placed annually by members of his family group after the gathering of coconuts. Until the prescribed date all coconuts that fell in "Royal" Pirgur were tabu and must not be touched or removed from the spot where they lay, or be cleared away if they fell in the path.

Anio, the great mysterious spirit which controls or influences all natural phenomena, and sometimes appears in animal or human shape, and whose voice may sometimes be heard at night giving warning of approaching death or disaster, seems to have been the great sire of the first *pualas* and the originator of the race.

5. Festivities and the Secret Order of "Apura."

The great annual festival occurs about the beginning of October, when the trade winds change and the coconuts have been gathered. Some three weeks before the feast the chief *apura* men retire to the woods, and compose in solitude the songs or recitations that will be chanted to the accompaniment of dancing when the day arrives. Some days before the feast the songs, which, for the most part, chronicle the events of the preceding months, will be rehearsed and learnt by heart. The feast is announced by the sounding of the big drum (*aiva*).[1] On the great night, by the light of the full moon, the people of each hamlet will form little groups, the men and women forming separate groups, and assemble in the chief village of the district, formerly the *puala*-station. The women wear white-feather headdresses, which look rather like full-bottomed wigs. Long poles are cut, and each group of about 16 men or 16 women march up and down the centre of the village alternately in line and in file, rhythmically rocking the pole to and fro. (Pl. XXXVI, Fig. 2.)

The *apura* form a secret society of feast organizers, song composers, attendants at royal funerals, and keepers of the regalia (the *tzulai* or *puala* shell-chains). At the obsequies of the chief they visited his grave at night and recovered the *tzulai* which had been buried with him.

[1] The big drums no longer exist on Aua; the last one was said to have been stolen by Europeans and taken away in a schooner.

The *apura* have a special uniform only worn on the special occasions on which they meet in the woods, or on the day of festivity, when some of them come dancing into the villages and terrify the women and children, munching raw shark's flesh and live snakes and lizards. This unappetizing food *apura* are especially fond of; it excites awe in those who see them and stimulates their own frenzy. Their faces and chests are painted red and black (red with the root of the *nono* tree and black with charcoal). Their headdress is fashioned with coconut-leaves forming a cap over the skull surmounted by a large sprouting crest. Round the waist is a coconut-leaf kilt. Legs and arms are tightly bandaged after the manner of puttees, with strips of pandanus leaf. These bandages prevent the arms and legs being bent, and so produce the side-to-side hopping and bounding characteristic of the *apura* gait. (Pl. XXXVII, Fig. 1.)

6. Occupations.

The sexual division of labour, which with greater or lesser strictness is a familiar feature in the economic organization of all communities, from the most primitive to the most evolved, is strictly carried out in Aua society. The allotment of duties and economic rôles, as elsewhere, conforms in general to physiological needs, differences in muscular strength and ability, and to sexual function. The maintenance of the home, the preparation of food, the rearing and care of children, are tasks which inevitably or conveniently fall to the lot of women. In a mother-right society the home, the house and the village are apt to become more absolutely the sovereign domain of the women. The word *rufu* means either the girls' house in particular or the village in general. Men are seldom seen in the villages during the daytime; their domain is in the plantations, in the *wula*-holes and in their fishing-canoes. Those industries which are most conveniently carried on in the home are generally the tasks left to the women. They make the ornamental black-rope girdles (*uru*) and other ornaments, they prepare the flax and make the fishing-lines, they sew pandanus leaf into cooking-dishes or into rain-capes, they plait baskets and the coco-leaf mats used for thatching, draw water and feed the turtles in the village turtle-holes. The men cultivate *wula* and tend the plantations (Pl. XXXVII, Fig. 2), hunt oppossum and flying-fox in the woods, fell trees, build the houses and the canoes, manufacture weapons, wooden articles of domestic use, and most fishing and agricultural implements.

Both men and women are adept in the different departments of fishing. Men fish from canoes and women along the reefs outside their villages. In calm weather women go out on to the reef and fish in the surf with sago-palm rods and line. Shark-fishing is a male pursuit. The sharks are caught by the men on lines cast from their light dug-out canoes. The moment a shark bites he is played to the surface and a long barbed spike is thrust down his throat. With his right hand the fisherman seizes a hardwood mallet and belabours the struggling shark on the nose while the canoe spins round like a top. When the shark is exhausted a dexterous twist

of the wrist lands him into the canoe. Sometimes a brother fisherman assists at this moment by steadying the canoe, but often the feat is accomplished single-handed.

Coral-hole fishing is an occupation strictly relegated to the women, and no man ever takes part in it except in the preliminary work of constructing the hole in the coral reef. This is a slow and laborious process, which may take a year and more to complete. The holes are excavated out of the coral reef and each belongs to the family that made it, and is named after the original constructor. When excavated the hole is filled up with flat stones. The holes may be no more than some 6 feet square, while the biggest one I visited was about 10 yards square.

The first proceeding consists in placing nets around the hole (*see* Pl. XXXVIII, Fig. 1), and then one by one the flat stones are thrown over the net. As the stones are removed the fish are driven to the bottom of the hole in attempting to hide beneath the stones. A long coconut-leaf basket (about 8 feet long) is placed along one side of the bottom of the hole, and in this the fish are found to seek refuge. Finally the bag is closed; two or three women lift it out of the water, and it is carried to the beach, where the catch is counted. (Pl. XXXVIII, Fig. 2.) As many as 300 fish have been caught in one hole.

DESCRIPTION OF PLATES.

(*Photographed by G. L. F. Pitt-Rivers.*)

Plate XXXIII.

Fig. 1.—Shark-fisher's canoe.

The Aua dug-out outrigged canoes are made from the trunk of the bread-fruit tree. The ornamental vertical tapering end-pieces (*aluna*) are carved out of separate blocks of wood, dovetailed to the body of the canoe and fixed with wooden tiepins. The *aluna* suggest the fins and tail of the shark. Like the houses the canoes are preserved by constant lime-washing. There is no caulking. The tail of a newly caught shark is protruding from the canoe.

Fig. 2.—A Village on Aua showing arrangement and types of houses.

The different types of houses are illustrated. From left to right: *Vasioa* (living-house), *uva* (bachelors' house), *leir* (provisions-house on piles), *rufu* (girls' house), and on extreme right *torro* (open-sided shelter). In the foreground a girl is husking a coconut.

Plate XXXIV.

Fig. 1.—Aua Women.

The left-hand figure is holding a bailer used for drawing water from the village water-holes. The women were selected to illustrate the range in skin colour.

Fig. 2.—Aua Warrior.

On his head he wears the blackened pandanus-leaf war-cap with frigate-bird plume. His fighting-spear is tipped with the tail bone of the sting-ray.

PLATE XXXV. (Photogravure.)

The Dead Chief's Canoe.

The broken canoe of the dead *päavi* stands on end on the site of his grave. The small boy is playing with a sago-palm fishing-rod.

PLATE XXXVI.

Fig 1.—Sacred *Tzulai*.

Sacred-shell waist chains of the departed *puala* chiefs.

Fig. 2.—Song and dance.

On the night of a feast the women put on their feather headdresses and, in modern times, cotton clothes. They sing as they march up and down, holding poles.

PLATE XXXVII.

Fig. 1.—An *Apura*.

The *apura* uniform consists of coco-leaf kilt and headdress; legs and arms are tightly bandaged with pandanus-leaf strips.

Fig. 2.—*Wula* planting.

Cutting off the edible root and the leaves, and replanting. *Wula* leaves protect the men's heads from the tropical sun.

PLATE XXXVIII.

Fig. 1.—Fishing in prepared holes in the reef.

The holes are excavated out of the coral reef. The women throw the flat stones which filled the hole over the net.

Fig. 2.—Removing catch from coral hole.

The long coconut bag filled with fish being lifted out of the hole after it has been emptied of stones.



FIG. 1.—SHARK-FISHER'S CANOE.



FIG. 2.—A VILLAGE ON AUA SHOWING ARRANGEMENT AND TYPES OF HOUSES.

AUA ISLAND.

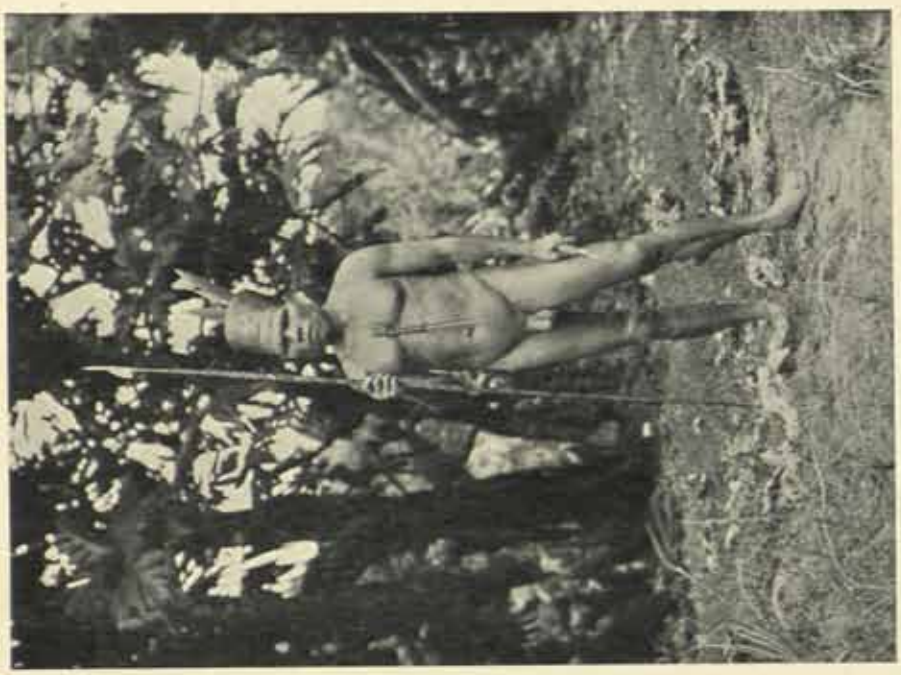


FIG. 2.—AUA WARRIOR.



FIG. 1.—AUA WOMEN.

AUA ISLAND.



The Dead Chief's Canoe.

AUA ISLAND.



FIG. 1.—SACRED TZULAI.



FIG. 2.—SONG AND DANCE.

AUA ISLAND.



FIG. 2.—WULA PLANTING.

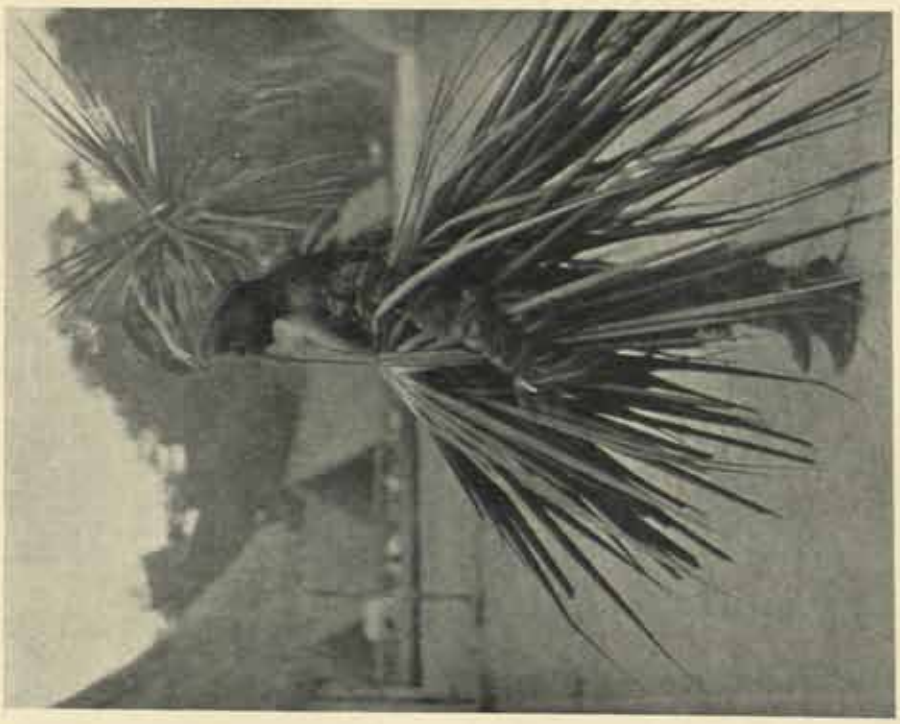


FIG. 1.—AN APUHA.

AUA ISLAND.



FIG. 1.—FISHING IN PREPARED HOLES IN THE REEF.



FIG. 2.—REMOVING CATCH FROM CORAL HOLE.

AUA ISLAND.

NOTES ON THE LUGWARI TRIBE OF CENTRAL AFRICA.

[With Plates XXXIX and XL.]

By R. E. McConnell.

The Lugwari Tribe of the West Nile District of Uganda does not seem to have been described, so I venture to record some notes, fully realizing their superficiality and inadequateness. Their language is a difficult one, which takes years to learn well. A few missionaries are the only Europeans who have a colloquial knowledge of it, and after eight years some of these spend a part of each day in further study. My information has been gained partly through them and partly through native interpreters, supplemented by suggestions and criticism from brother officers in Government service, and rounded off by personal observation and inquiry.

The habitat of the Lugwari is part of the West Nile District of the Uganda Protectorate and an adjacent area of about similar size in the Belgian Congo.

This administrative area of Uganda, in the few years in which it has been known to history, has had a career full of changes. Emin Pasha had a post at Paida and one at Dufile on the Nile. Though still marked on maps, the site of the latter is already scarcely to be discovered. On his departure with Stanley some companies of Nubi troops were left behind, and part of the district fell under their predatory military occupation, arranged on the blockhouse system.

As part of the Lado Enclave the district was leased to the late King of the Belgians for twenty-five years. Theirs was a semi-military occupation, and the Lugwari, the strongest tribe coming under them, were not really administered, though they were from time to time subjected to severe punishment by military detachments. The main post among them at Offudde, near Mount Watti, though substantially built of stone and brick and only evacuated in 1911, has already the appearance of an ancient ruin.

On the expiration of the Belgian lease the Sudan took it over and it was under their control for three years. Their administration over much of the district was very superficial. In 1913 it was exchanged with Uganda for a slice of the northern part of this Protectorate, which included the stations of Nimule and Gondokoro. These are both on the Nile and have an unnavigable stretch of river between them.

Mr. A. E. Weatherhead was the first Uganda administrator in the West Nile and, with the exception of furloughs, has until very recently been continuously in administrative charge. Though often the only European there, with only about

100 black police, he has made an orderly district of it, with wide clean roads to, and comfortable camps at, all important centres.

It is roughly 55 miles wide and 90 miles deep, with the Nile-Congo watershed as the western boundary, the Nile as the eastern (except for a small area inhabited by the Madi tribe, extending across on the eastern bank of the Nile, included for administrative reasons), and an artificial boundary north and south separating it from the Sudan and Congo respectively. The altitude of the northern and eastern parts is relatively low (2,000 to 3,000 feet), hot and unhealthy and, for the most part, covered with thick bush. Malaria and elephantiasis are here very

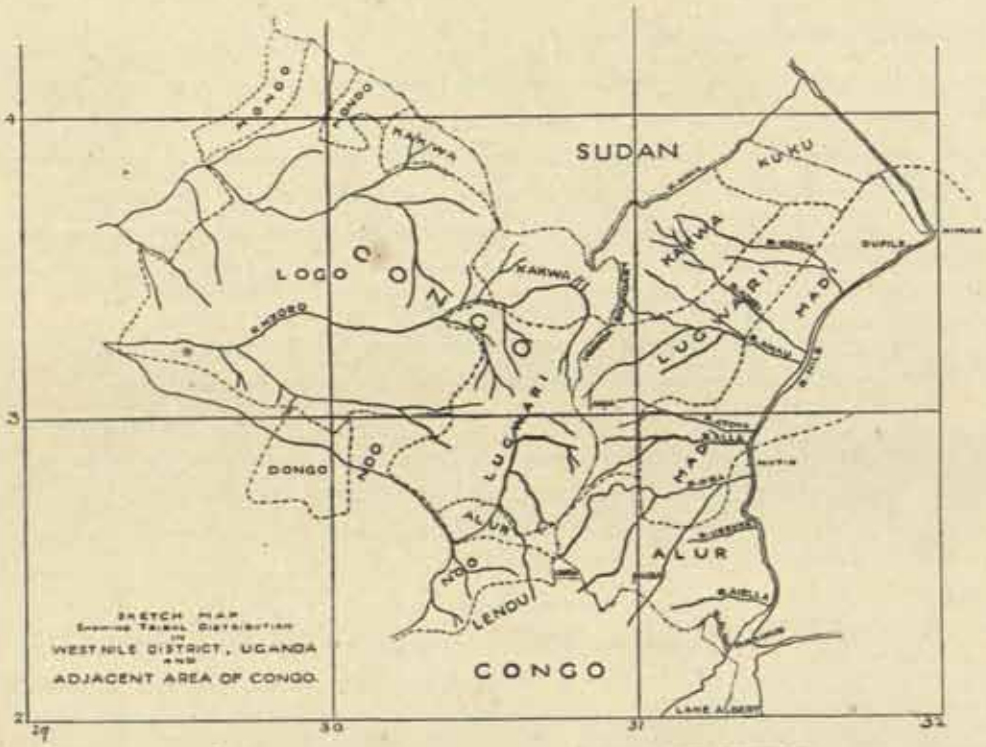


FIG. 1.—MAP SHOWING THE AREA OCCUPIED BY THE LUGWARI.

common. The tsetse fly of sleeping sickness (*Glossina palpalis*) exists along the Nile and up most of its tributaries to varying distances, but often almost to their sources at the watershed. These flies do not reach an altitude of much over 4,000 feet, however (which is the highest level at which they have been recorded), so that some of the south and west parts of the district, on account of their greater altitude, are free from them. Sleeping sickness itself is very prevalent in the north-eastern area among the Madi, and endemic in the Nile valley south of this among the Alur, though the cases are not numerous. In this lower country, too, *Glossina morsitans* is numerous, so that cattle are either absent or few. Game is plentiful. This and an adjacent area of the Sudan form probably the last haunt of the so-called white rhinoceros. Elephants

are still quite numerous, in spite of the murderous onslaughts made on them by many poachers some dozen years ago. Giant eland is reported to exist in the north. For the rest, the game comprises the ordinary list of Uganda land fauna—lion, leopard, hyæna, jackal, buffalo, waterbuck, cob, reedbuck, bushbuck, warthog, pig; some small antelope and many varieties of rodents may be mentioned.

The Congo-Nile watershed gradually rises from north to south, and in the south-west corner the hills Zeio and Akara attain a height of some 6,000 feet. Rolling open grass country takes the place of bush in this higher area. The population is numerous, cultivation extensive, cattle plentiful, and as a consequence game is scarce. A fairly well-defined, though not high, escarpment separates the high and low types of country, though it disappears towards the north, where they merge into one.

Arua (Pl. XXXIX, Fig. 1), the Government centre, is at an altitude of about 4,500 feet. It is the only place where meteorological records have been kept, though they cannot be regarded as absolutely reliable. The mean annual maximum temperature for four years was 77·9 and the mean minimum 66·1, while the rainfall over the same period averaged 43·95 inches.

The most interesting feature of the district is the population. Here three distinct stocks meet; (1) those of Muller's Equatorial Linguistic Family, exemplified by the Lugwari, Madi, and a few Lendu; (2) the Hamitic, represented by the Kakwa and Kuku, modified by the blood of the people through whom they have passed in their migration west; and (3) the Nilotic tribe of the Alur, of whom there are two divisions—the inland portion, the Alur proper, whose language is much affected by the Lendu and neighbouring tribes, and the Jonam (river people), who were originally one with the Jopaluo or Chopi, a Nilotic-Bantu people who live near the Nile, principally on the stretch between Lakes Albert and Kioga.

As a rule there are no outstanding geographical features separating the tribes, so that their distribution can be best realized by consulting a map than by any description (Fig. 1). The boundaries lie along the lines where they met sufficient opposition to stay their advance.

The Alur came immediately from the east bank of the Nile, between the north end of Lake Albert and Wadelai. They spread through the southern parts of the West Nile district, and adjacent parts of the Congo, to the south and west until they were held up by the Lendu. The Alur population on the east bank was for administrative and medical (better control of sleeping sickness) reasons transferred to the west a few years ago.

The Kakwa and Kuku inhabit the north of the district and the adjacent part of the Sudan. They are the only Hamitic tribes in this district, and together with some Fajallu and other small tribes akin to the Kakwa, and with some Bari, are the only ones west of the Nile. The Bari inhabit both banks of the Nile from where the Aswa River enters it up to Mongalla in the Sudan, but do not extend to the district of Uganda under consideration.

The Madi, who form the easternmost outpost of the "Equatorial Linguistic" type, inhabit the north-east of the district, and spread over to the east bank of the Nile from a little north of Wadelai to the estuary of the Aswa. There is also a section of them a little south of the centre of the district enclosed between the Alur and Lugwari, which differs in many minor respects from the northern section. Both sections show some bodily features which point to intermarriage with females captured during their advance, or with their present neighbours, so that they have lost much of their physical similarity to the Lugwari, though about 80 per cent. of their words are still identical with those used by this tribe.

The Lugwari occupy all the west section of the central part of the district and much of the northern part; they do not reach the Nile, but extend well over into the Congo and are closely connected with the Mundu, Logo, and Ajigu there.

The Lendu occur in a small corner in the south-east, but are a powerful tribe in the adjacent part of the Congo.

Though not aggressive, the Lugwari are a fearless and warlike people in defence, or in revenge for a grievance. It is reported that after considerable aggravation they attacked a body of 600 of Emin Pasha's men at the base of Mount Watti, of whom only three escaped. The organization and co-operation necessary for such a feat were seldom feasible, as the tribe was without powerful chiefs, and each hamlet was to a large extent an independent unit—to such a degree that a man could seldom go more than a mile or two from his home without running a great chance of being killed, except at the wife-choosing and dancing season, when movement became freer.

There is no definite history of there ever having been any organization of the tribe as a whole. It may, however, be that this is a retrograde movement dating from not many generations back, as it is difficult to see how they could have advanced and occupied their present habitat without organization, even though this may not have reached to the stage of appointing a paramount chief. There is no history, further, in recent times, of there having been any large section of the tribe under one leadership. They did have *suru* or clan chiefs. The history of this seems lost in antiquity; they do not know the reason of it. It may possibly be a broken-down totemism. Two outstanding recent clan chiefs were Alija and Mba, who had relatively large followings, but even they had nothing approaching the adhesion of people of most other tribes to their chiefs. A smaller chief had usually few people and a small area; he had little hold on them, and was in effect rather a headman.

The Lugwari, therefore, in recent years fought largely among themselves, rather than as an organized people against adjacent tribes. Some temporary organization over a small area and on a fragile scale would develop itself in the face of occasional attacks on the part of their neighbours. If, however, a man goes to the help of a neighbouring community and is killed in the fighting, his people often blame the people of the village or community in question for this.

On account of their intractability the Belgians made little effort to administer them. One of the elephant poachers of twelve years ago told me that when he had to traverse their country he did so as quickly as possible. Since our administration small punitive affairs have been not infrequent, and on the whole they have been a rather difficult tribe to tame.

Killings among themselves are common, particularly in the dancing and drinking months of January and February. While they are fairly honest among themselves, some missionaries have stated that they were obliged to put their granaries in a house for protection. As in all African tribes, abstract truthfulness is a quality totally un-understood by them, yet in practice one finds that they compare very favourably with most others, except where sophistication is undermining them.

Though slow to learn they are retentive. The missionaries find them very "wild" to begin with, but report that with persistent instruction they give good promise. The Italian Fathers state that with respect to their neighbours they do not share the Alur's laziness and have more capacity than the Madi. The girls have better memories at corresponding ages, but do not in the end grasp the substance of a problem as satisfactorily as the boys. In the King's African Rifles, during the war, they furnished some excellent soldiers. The officers have told me that they despaired of them in the beginning, but that when their minds did at last awake to the meaning of their instructions they were among the best of the native soldiers.

Physically, the Lugwari is well over the average height and is very well set up, with large bones and heavy musculature. Few, however, are over 6 feet in height. Successive difficulties in obtaining measuring instruments prevented the securing of many anthropological records. The few taken are set forth here.

These figures, giving a cephalic index of 76, place them in the sub-dolichocephalic category, but those measured were prisoners, often of a poor type. Measurements carried out on more typical specimens would, I am convinced, place them nearer the roundhead dividing line, as their appearance gives distinctly the impression of roundheadedness. This is especially striking, as they are in contact with longheads.

The Lugwari has, of course, the flat nose and thick lips of the negro, but there is generally an amelioration of the more exaggerated features of the negro facies, especially in that a not inconsiderable bridge to the nose often exists. A somewhat dour and serious expression makes his appearance less pleasant than it ought to be (Pl. XXXIX, Fig. 2).

The language has many words of one syllable, the same word with fine distinctions in pronunciation serving several purposes. The words are usually short, and this, with their loud, decisive and explosive enunciation, place it among the most unmusical and unattractive of languages. It is allied to that of the Logo of the Congo, and the Mundu and Nyamnyam of the Congo-Sudan border country. The Logo tribe near Aba in the Congo are very like the Lugwari, and are next them geographically. The Belgians often put Logo chiefs over them on account of their greater tractability.

Measurements of Ten Male Lugwari.

Age.	Heights to—												Length of foot, second toe.*	Breadth of shoulders.	Breadth of thighs (trochanters).
	Vertex.	Middle of ear-hole.	Chin point.	Point of shoulder.	Top of sternal notch.	Elbow, radius end.	Wrist end of radius.	Tip, middle finger.	Top pubic symphisis.	Top of thigh, great trochan.	Inner knee joint.	Ankle-tip of inner shin.			
26 ...	182·5	168·2	157·9	149·8	153	116·7	89·7	(?)	97·2	99·9	51·6	5·7	27·2	39·1	31·1
18 ...	174·1	160	153·9	146·4	145	112·3	85·2	64·1	92·6	97·8	51	7·1	25	37·3	28·6
24 ...	182	169·3	160·2	154	149·6	120·6	88·2	69·1	98	100·2	51·7	7·2	28	39·8	29·3
20 ...	167	151·5	144·4	136·2	136·5	103·9	79·3	60·8	86·8	88·8	47·1	6·3	24·6	36·1	27·5
30 ...	173·5	159·8	150·8	142·2	143	108·4	84·2	62·4	89·5	92·2	48·1	7·6	26·8	37·2	30·1
25 ...	168·7	155·9	147·5	138·6	140·4	105·5	79	61·2	89·6	92·4	47·9	6·4	25·3	38	27·9
35 ...	169·9	154·2	147·3	139·1	139·5	106·5	79	59·4	87·7	89·7	46·3	7	26·9	39·6	28·9
25 ...	181·8	168·1	161·8	151·3	157·1	117·9	91·1	70·8	98·1	100·6	51·2	8	27·4	39·2	30·7
26 ...	175·6	162·7	155	143·9	145·2	109·2	84·1	63·5	90·3	93·1	48·6	7·2	27·9	39·4	30
30 ...	173·2	159·2	152	143·6	143	107·8	79·8	60	92·5	96·1	49·4	7	26·5	37·9	29·3

* Great toe longer than second in all cases.

MEASUREMENTS OF TEN MALE LUGWARI—*continued.*

Age.	Depths.				Head.									Remarks.
	Fourth sternal cartilage to spine.		Chest, same level, breadth.		Maximum length.	Maximum breadth.	Nasion to edge of gum—upper incisor.	Nasion to point of chin.	Bi-zygomatic breadth.	External orbital breadth.	Nasion to junction septum and lip.	Nasal breadth.	Orbito-nasal curve.	
	Expiration.	Inspiration.	Expiration.	Inspiration.										
26 ...	19·3	20·6	27·6	28·3	20·2	15·6	6	11·7	13·8	11·6	7·5	4·7	12·5	
18 ...	17·8	19·1	23·5	24·2	20	15	6	11·3	13	10·9	4·1	4·5	12·2	Longer head than usual.
24 ...	21·1	23·4	26·5	28·6	19·4	14·4	7·3	12·6	15·9	10·1	5	4·4	11·4	
20 ...	18·1	19·5	24·9	25·7	19·8	14·9	5·5	10·4	•13·5	10·2	4·3	4·5	12·2	
30 ...	21·7	23·2	27	28	19·4	15	6	10·5	14·6	10·7	4·6	4·6	11·8	
25 ...	18	20·7	27·2	29·5	18·5	14·5	5·8	10·4	13·9	10·2	3·9	4	11·4	
35 ...	20	21·6	27·5	28·6	20·7	15·6	5·7	10·4	14·4	11·2	4·4	5	12·3	
25 ...	18·9	20·7	28·9	30·2	20	14·5	6·4	10·9	14·1	11·1	4·7	4·2	12·3	Longer headed than usual, very sloping forehead.
26 ...	20	21·1	27	29·2	19·6	15·3	5·8	10·3	14·8	11·2	4·1	4·1	12	
30 ...	20·9	23	26·3	27·4	19·9	15·3	6·5	10·8	14·3	11·1	4·8	4·3	12	

The men are quite naked, though they do not forgo all ornament. With few exceptions the upper and lower lips have a single central puncture, in which is inserted a brass ring, or an incomplete ring with one or both ends prolonged for half to one inch.

A series of punctures is also made in the outer edge of the lower half of the ear, into each of which a short length of brass wire is set, the ends of which are approximated. There may also be a brass, iron, or occasionally ivory, armlet on one or both upper arms, or even on the wrists; and there may also be a leglet of similar material fitting just above the calf.

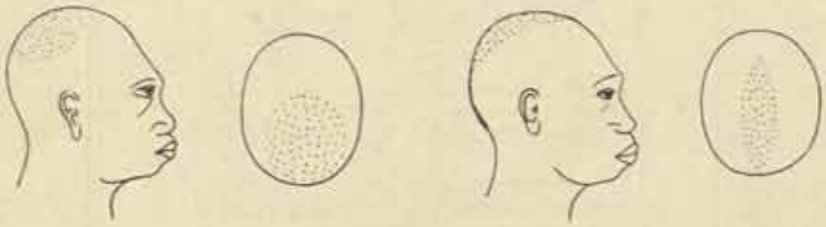


FIG. 2.—DIAGRAM TO SHOW MODES OF SHAVING THE HEAD, LUGWARI.

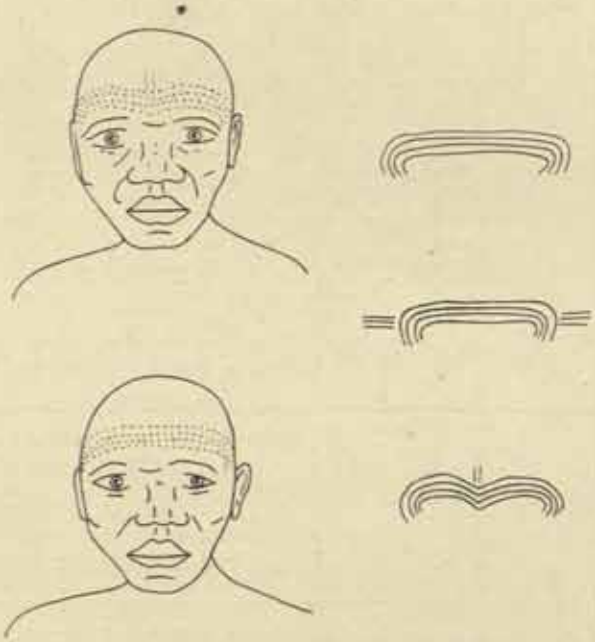


FIG. 3.—SCARIFICATION OF THE FACE, LUGWARI.

The head is shaved, but often there is left growing, for the purpose of satisfying their vanity, (1) a round area like the site of a small skull-cap on the back of the head, or (2) a meniscus-shaped patch (Fig. 2). Again, after a short new growth of hair, they shave again in such a manner that narrow bands of hair are left forming varied

intricate patterns. Medicine men allow their hair to grow, as also do people in heavy mourning, for a period of one or even two years. Often those suffering from chronic disease, such as yaws, also forgo shaving the head. Occasionally long hair may signify a vow not to shave until some registered wish has been achieved, or in the presence of a thwarted desire, such as the Government prohibition of the observance of the vendetta custom.

The facial and pubic hairs are either extracted by little brass or iron pincers, pulled out by the fingers, or shaved off.

On the forehead there is nearly always a series of small scarifications in rows, following roughly the line of the brows and having a short dip at the outer angle of the eye. These may consist of four, five or six rows of dots, and may be varied slightly, in that there may be a dip downwards over the nose, with perhaps a few upright lines

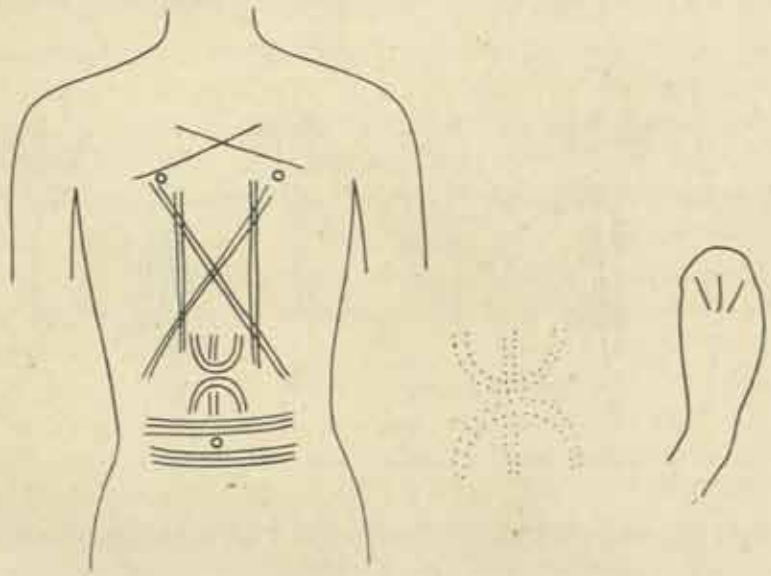


FIG. 4.—SCARIFICATION OF BODY, LUGWARI MAN.

of scars over this depression, or the turning downwards at the outer ends may be omitted, or a few short horizontal lines may be placed at the outer angle (Fig. 3). The general plan is distinctive of the tribe, and they recognize each other thereby. The Nubi (Mohammedan) distinctive marks of three linear scars on each cheek are also now frequently appearing. These were originally the marks distinguishing the slaves of the invading Nubi troops, and are now inseparably connected with being Mohammedanized, and convey some social distinction.

The front of the body is scarified in a design based usually on one general plan, but often modified in minor ways. Some of these scars consist of short lines instead of dots. In some sections of the tribe the men only scarify the abdomen. The deltoid region of the upper arm has two or three large scars on it which converge downwards (Fig. 4).

The six central lower teeth are extracted in both sexes. This happens at about the age of nine years. They are prised out with a knife or metal hook. The custom has now no serious significance and falls into the category of hereditary tribal ornamentation.

In neither sex is any circumcisional practice observed. A mild objection to this forms something of a bar to their becoming rapidly Mohammedanized.

The women adopt the same head ornaments and scars as the men. The scarifications on the body usually differ, however. On the abdomen, above the string belt, a number of horizontal rows of dots are made. These are usually in the umbilical region, but in some tribal sections are more extensive. This is done at the age of puberty. On the lumbar region of the back they have an oblong of horizontal dots, bordered at the ends by a few vertical ones (Fig. 5). Sometimes a little ornamental design is placed in the middle of this. Scarifications are re-done when advanced fading occurs.

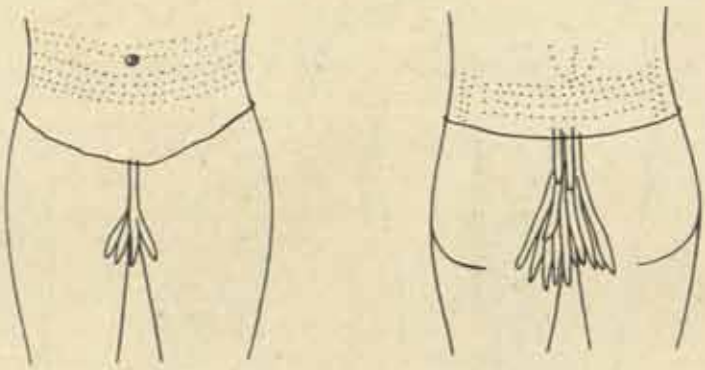


FIG. 5.—SCARIFICATION OF BODY, LUGWARI WOMAN.

Young girls are unclothed, but the married women, and sometimes older unmarried girls, wear a string girdle, usually made of twisted cowhide, and unornamented, though it is not uncommon now for this to be supplanted by a string of beads. Under this is stuck in front a few leaves so adjusted as to conceal, or partly conceal, the pudenda, while behind is a larger collection of leaves, sometimes so extensive that the buttocks are almost covered (Fig. 5).

The kindred tribe of Madi have generally abandoned this attire and wear an anterior protector of strands of twisted cotton or finely linked iron chainwork in the form of loops or strings with, posteriorly, a long tail of the former material. This has doubtless evolved from their contact with the Nilotic Acholi and Alur. The neighbouring Alur, on the other hand, who show some stigmata of degeneracy, have to a considerable extent lazily adopted the more primitive Lugwari leaf covering, but in a modified form, which in effect is more immodest.

The Lugwari women very usually wear large clumsy iron rings around their ankles, which, in some cases, may be so numerous as to be an impediment in long

marches and to cause very nasty sores on the legs. They also carry a knife about six inches long stuck in the right side of the string girdle. It has a wooden handle and a bellying iron blade with an apical prolongation. These are used for all domestic purposes.

The whole body in both sexes is often smeared with ochre rubbed up with semsem oil. This is especially popular in preparation for a dance. Not infrequently the head only, exclusive of the face, is treated in this way. This is in the nature of holiday dress and is considered to show off the body to the best advantage. It must be admitted that the crimson-brown colouration is not unpleasing.

The women carry the children on their backs in a leather sling (*ebuka*). From the upper part of the oblong of leather two straps extend; the lower part is bound round a rung of wood, which has a strap attached to each end of it. The babies' legs hang over the rung and the four straps are securely tied between the breasts. The rung may be omitted, in which case the bottom end of the leather is heavily bound. The oblong may be made of basket-work bound with leather, the rung being again left out.

A protector against rain and sun for the head and upper part of the body of the baby may also be carried. It is called *kobi* or *kubi*. It is shaped like a flattened cone with part of one side cut away, and may be made of leather, or basket-work faced with leather. Sometimes simply a large calabash cut in a suitable shape may take the place of this. In the absence of a basket-platter for winnowing grain these protectors are sometimes pressed into service for this purpose, especially the type made of basket-work.

Their arms consist of the bow and arrow and the spear. The former forms their more distinctive weapon, and is a quite effective one in a mixture of tall grass and bush country. In the course of one month two out of three Government officers in the District were hit by them.

The bow averages about 2 feet 6 inches long, and is made of an ash-like species of wood. The string is usually made from the leg or back ligaments of cattle, but sometimes from fibrous plants. The arrows vary in finish among the different clans. They consist of a fine bamboo shaft, 15 or 16 inches long, and an iron head, 8 to 10 inches long. The shaft is bound at each end and is not feathered, though feathered shafts, minus the iron head, may be used by little children in learning. The head is long, fine, tapering and quadrilateral. It almost always is barbed in one of the many patterns which they have adopted or partially evolved. It usually has so much poisonous material on it that it appears to be round almost to its tip. The poison is usually the inspissated juice of a Euphorbia called *oari*. There is considerable pain at the site of the wound, which may later spread along the muscles; some temperature is present a few hours after the receipt of the wound, and vomiting may take place: recovery is slow. Children show the symptoms in severer forms, and may die. I have only seen one fatal case of arrow-poisoning. This man had four severe wounds. He died after some twelve days, when the wounds were healing

and the temperature normal, with gradual respiratory failure. The poison in this case probably also contained an extract from the seeds of a large tree (*Erythrophlæum guineense*), which grows only in streams in the District and is called by the Lugwari *ifaffi*. This is not really a Lugwari custom, but is borrowed from Congo neighbours and only occasionally used near the Congo border. The seeds are roasted and powdered and the product put in the arrow poison, or in a quantity of water, and used as an ordeal, which is the more common use to which it is put. The arrows are carried in a well-made cowhide quiver, which has a sheath cover of similar material. These are slung from the lower part of the arm and carry 50 to 100 arrows. On the sheaths are attached portions of tails of animals killed by the owner. An arrow flight has measured 170 yards.

They do not have shields, but sometimes hang a skin from the neck over the left arm during battle. A small section of the tribe near lower Vurra do use dry and hard cattle skins as shields.

The ordinary spear is very long and unwieldly, with a heavy head. It is kept for fighting at close quarters, either in retreat or charge. They may be thrown if the enemy is quite near, but are not really throwing weapons.

A fight is begun with bows and arrows. When the contestants come to close quarters they rush for their spears, which have been left on the ground behind them, and armed with these the battle is finished.

Their huts are low, often not 6 feet in height at the apex outside, but usually 7 or 8 feet. This, however, seldom gives a height of 6 feet at the centre inside. They are made small, doubtless because by sleeping quite close together and maintaining a small smouldering fire a naked people may enjoy some degree of comfort in the face of a night temperature of 65° F. The fire is often a meagre one, as in a considerable part of their country wood is scarce. The roof is conical or peaked-mushroom in shape and is made of a framework of light sticks bound together and then thatched. The whole thing can be tilted off the supporting walls. Over the apex of the roof a "swanky" man may have a piece of pottery shaped like a cardinal's hat, which may have geometrical designs on it. This may be substituted by animals' horns or some other ornament. The walls of a living-house are 6 inches to 2 feet high and 6 to 8 feet in diameter. They are made of stakes muddied over, or sometimes slabs of stone. There is a lintel, usually a stone, at the doorway to keep out the rainwater. Two oblong stones are often set at each side of the entrance. The roof is fitted like a lid over these walls: when the doorway stones are present they push the roof up over them a little, in an eave-like fashion, which facilitates entrance slightly. A piece of basket work sometimes serves to cover up the entrance at night.

The cooking-huts have the same type of roof, but these may be supported on a circle of stout stakes alone, thus admitting of ventilation. In these huts grain-grinding stones and cooking-pots are also kept.

The granaries are made of basket-work thinly muddied, and covered with a small roof similar to those used on the houses. The whole is supported on four stout forked sticks and varies in height from the ground from a few feet to well over 6 feet. They are usually from 2½ feet to 4 feet in diameter, but may go considerably over this (Pl. XL, Fig. 2).

A family usually lives in a zareba or staked enclosure which has one or two low entrances, one of which is high enough to allow their cattle to enter. There may be several living-huts and kitchens in the same compound. Each wife has her hut. Stakes for cattle, often having numerous notches, fill up the centre, usually on a muddied dais. On the dais is also a larger stake or tree on which the drums, if any, are kept slung, protected from the weather by a conical grass roof. The granaries are often outside the zareba.

There is no classical system of arranging their family settlements. Often the living-huts, kitchens, and granaries are a mixed cluster unprotected by a zareba, while near by is a circular stockade made of stout wooden posts or branches of thorn bush (*lichwa*—a fence), where the cattle are housed. This condition is especially found where security is felt, as around the administrative centre, Arua. In the cattle enclosure there is a small hut for the cowherd.

When boys and girls reach the age of about eight they are put into sleeping-huts (*odrozo*) separate from their parents, in which both sexes may be together. When several families live close together these houses are often built communally and placed in the centre of the cluster.

Usually between the supporting posts of a granary, but often near the entrance to living-huts, and sometimes elsewhere in the vicinity of the huts, there is generally a little spirit house, or it may be several (Pl. XL, Fig. 4). Further reference to these will be made later.

In the sleeping-huts there is often no furniture at all. In this case they sleep directly on the ground, or on a grass mat laid on it. Sometimes, however, they use a slab from a tree-trunk, perhaps 2 feet wide (*bolo*), curved side up, as a bed. In the large huts of the more prominent families they may have a built bed (*mbitri*). To make these, four wooden forks are placed in the ground, and over two end cross-pieces poles are laid, or it may be slabs from the hollow stem of the borassus palm. A mat may be laid over these. They sleep quite naked and close together. They always have a fire somewhere in the hut, which, in the presence of a raised bed, may be actually under it. Sometimes the goats and sheep are put in the house first, the sticks on which the owner sleeps being then adjusted over them on supports.

They often have a considerable number of a small variety of cattle. These are herded by small boys, who may take it in turns every three, four or five days to perform this duty. One, usually an elder boy, sleeps in the hut in their stockade when this is separate from the dwellings.

When the huts are scattered the gardens are usually interspersed among them; when the hamlet is more concentrated the gardens are near by. Sometimes, however, they are two or three miles away, in which case temporary huts are built in order to be near them when necessary, the owners returning to their permanent homes after the harvest. The explanation of this is that the homes must be near a good supply of water for household purposes where the soil may be poor, while the gardens are placed where the soil is good irrespective of other conditions.

Their principal crops are Guinea corn (*ondo*) and millet (*odo*). Sweet potatoes are also used by them (*mako*) probably more than by any other of the North Uganda tribes; this is largely a development since British occupation. They grow beans on a large scale (*kaiko*)—yellow, red or green—also pigeon peas (*oboroso* or *bubusu*), a shrub with a pea-like pod of seeds. Semsem (*ariyu*) is grown on a fairly large scale, and its oil is used both in cooking and to smear the body with. Ground nuts (peanuts) are produced on a more modest scale. Manioc (cassava) is grown in some parts. Red peppers commonly grow near habitations and are used, though not cultivated. They are called *nzaya* or *ria-ria*, though they generally use the term *kamalala*, a perversion of the Lunyoro word for them.

They are possibly the best cultivators in the Protectorate. Both sexes enter the fields as soon as they are strong enough. The men hoe, our equivalent of ploughing, while the women weed and gather the produce (Pl. XL, Fig. 3). A man hoes a sufficient area for a garden for each of his wives. Each wife has two granaries, one for grain and one for semsem.

They have two grain crops. At the beginning of the first rains in April they sow millet, which is gathered in July or August. They then hoe again and put in millet and Kaffir corn together. The millet grows the faster, and in three months is ripe: the corn grows anything up to a height of 16 feet, and is cut about December. They are both stored on their stems in the granaries, which have already been referred to. When required they are beaten with a stick on a rock and winnowed by tossing the seeds up from a piece of basket work. They are then ground, usually on a granitic schist outcrop, with a rounded stone of similar composition as a grinder. Whenever such an outcrop occurs oval hollows caused by grinding are numerous. The nether-stone may also be a detached piece of rock carried to villages not favoured by near-by outcrops.

Women and girls grind the grain, but young men may also help. Only the women cook. Men often prefer to go foodless rather than cook for themselves. The meal is cooked in large earthenware pots and served as a very thick porridge or mash.

These grains form the staple food of the people. They are rendered more palatable often by semsem oil, a liquid ground-nut paste, beans, or possibly red peppers.

The Lugwari are not now great hunters, for much of their country is almost destitute of game. They enjoy meat, though many months may pass during which an ordinary peasant will have none unless some animal dies a natural death. A successful hunt, or when a festival, dance, death or some religious belief demands

that a goat, sheep, or possibly bullock, be killed, form almost the only occasions when meat is accessible to many of them, but it is not difficult to make an excuse for some celebration. The chiefs, however, form an exception, and they may have it frequently, as they are often wealthy in livestock, though formerly even they only slaughtered on ceremonial and special occasions.

The men often eat separately from the women. The food for the head of the house is prepared by the wife who spent the previous night with him.

Women are forbidden to eat the flesh of goats and sheep over much of the country, and fowl and eggs everywhere. To drink milk is also forbidden them. They are permitted to eat the meat of cattle and all wild animals. There are local variations in these, as in most of their customs. It is believed that if they did not comply with these restrictions they would not bear children. Women past the child-bearing age are generally exempted.

The people are now hospitable and welcome wanderers at night, and feed passing friends, though they are afraid of strangers and would not extend this display of kindness to them. A visitor is given the arm of a maiden to sleep on. Like all African tribes, they are very fond of eating the termite, more popularly called the white ant. They may eat them alive, holding them by the wings and pulling the body off with the teeth, or more often they collect a considerable number and cook them. These usually emerge from the ant-heaps or subterranean channels after a heavy rainfall. On a clear night following such a rain the whole countryside sparkles with the dried-grass flares of the people moving about collecting them. In the absence of rain, some system of making a noise by beating various articles with sticks is used. This is to simulate a heavy rainfall and thus to deceive the termites. Picture a Lugwari family, nine of them, male and female, including a woman with a baby on her back. With short sticks they are beating on calabashes and on other sticks. A few earthenware pots containing water and some clay accompany them. As an ant-opening is found a blob of clay is put temporarily over it. A lump of clay is made into the shape of a small hollow cone or bee-hive with an opening at one side. An oblong piece of clay a few inches long, troughed on the top, is then fashioned. Another hollow cone of clay with the top cut off is next prepared. The cone is now put over the entrance to the termite colony, replacing the original blob of clay; the trough is put next it, against the opening in its side; a wet leaf is put on the distal end of the trough; then the second cone is put over the end of this so that the trough leads into it. The leaf being slippery makes it difficult for the insects to return. The trough is then roofed over with clay. Some leaves are put around the upper opening in this cone and a lump of clay laid over these. This lump is taken off at intervals to see how the ants are coming along. Then tireless beating is begun and perhaps some singing. At intervals, as ants escape, they are caught and eaten alive. As the ant-pipes are usually numerous and quite near one another a weird-looking little colony of these clay traps arises.

The garden implements consist of a digging-stick and hoe. The former is used by women to break up clods and to take out grass, weeds, and potatoes. It is a forerunner of the hoe and is simply a piece of tree-stem cut so as to include a branch extending at an acute angle. The hoe has a heart-shaped iron blade with a prolongation from the middle of the upper end to pierce a knot or knob at the end of a stout stick some 2 feet in length (Pl. XL, Fig. 3). It is set in at a slightly acute angle. These are usually the only instruments used in actual cultivation, but a wooden rake is used by some, two-pronged or, rarely, three. It is made from the bifurcation or trifurcation of a suitable branch, bound with rope while green until it hardens into the requisite shape.

The chiefship was usually hereditary, the eldest son succeeding the father, but the father had the right of choosing another son, or might appoint a maternal nephew as his successor. Again, if the direct-line successor proved to be unsatisfactory, the tribe might appoint a maternal nephew to replace him.

They marry young. They never marry a relative or even one of the same clan, but choose a partner from a distance. They may go into their ancestry for four or five generations to make sure of not infringing this regulation.

Every year in the various villages it is common to arrange a large dance, when all the young people come together and mating arrangements are made. When a man decides to marry he makes a visit to the village of the girl's father, where he sleeps with her unofficially and platonically and afterwards sends friends to present his wishes to the father. If the father consents they present him with a goat, sheep, or ox, or possibly a hoe. They then discuss the *dot*. This may take a month's negotiations, as the father usually wants more than is offered. The father cannot dissent to a girl's marriage if the girl agrees, except on account of inadequacy of dowry.

Before the girl goes to her husband he goes, either alone or with friends and relatives, to make a large field for her father. The latter kills a goat and all the workers eat, but the future bride and bridegroom refrain. If the workers are many they may be supplied with drink. The whole arrangements may take about four months. *Azirzo* is the term used for the work for which the bridegroom is responsible to the father (*azi* is the Madi word for work). When they have agreed about the amount, the groom and his friends take the cows and other items to the father. A goat may then be killed for a feast and alcoholic drinkables provided to celebrate this step.

When all the preliminaries have been completed and the time to send the girl to her man has arrived, her mother and an oldish woman may accompany her. She goes to her husband's hut at once, but may come out later and join in the dancing if any is going on. In some cases, adopting a Nubi custom, they open the door of the groom's hut and kill a goat at it. Then the girl goes inside. More usually the mother does not accompany her to the husband but will visit her after five or ten days, accompanied by young girls singing and dancing. Feasting and dancing take

place at the village for one or two days, unless the man is poor, when all go away after a short visit. The bridegroom gives a goat to the mother, and, to any other older women accompanying her, one, two or more arrows. There are no ceremonies about the dance: ordinarily the bridegroom gives forth frequent falsetto ululations. Next day he goes to his work as usual.

Boys marry, if rich, at puberty; if poor, later. Girls may be pledged (betrothed before puberty in respect of a debt which the father has contracted, in which case if she is willing, on reaching a marriageable age he gives her to the creditor's son. A man may have as many wives as he likes if he can make the necessary arrangement with the fathers and is rich enough in cattle. They ordinarily do not have many. A considerable number only have one, and this obtains even among those who have cattle sufficient to meet the requirements of additional marriages. They may keep the cattle for their sons so that they can marry early. Sometimes a boy's parents may have no cows, and if asked when he will marry will reply, "When my father receives cows in respect of my sister's marriage."

A husband may dismiss his wife if there are no children, but if she is a good worker he often keeps her in spite of sterility. A woman may leave her husband if she does not bear by him, and if it is clear that the cause lies with him.

When the husband dies the wives usually go to a brother or possibly some other male relation. Ordinarily they may not refuse, but sometimes they select their new possessor, who is expected to live in their locality. Sometimes, again, if the brother is too young, they are married to non-relatives, in which case this youngster or other male relative receives the cows in respect of the new marriage. If a woman returns to her people and leaves a child behind, one cow is returned to the man who has inherited her; if childless, two. When wives are numerous the brother may only take two, and the rest may be allowed to return home on easy terms. When a father leaves a big boy, ordinarily the mother remains alone and he tills for her. When a man's son takes a wife he builds near his parents.

Ordinarily wives are faithful, but, human nature being what it is, it would be unwise to expect anything approaching perfection in this respect. The Roman Catholic Fathers consider the Lugwari to be more moral than most tribes. Before marriage, however, there is some looseness amongst themselves, though there is a fine of a goat or a hen for any lapse discovered. I have never known an instance of either temporary or permanent cohabitation on their part with members of other tribes, Indians or Europeans, which is in marked contrast to what is found among the more highly civilized Bantu tribes of the Protectorate.

When a wife is proved an adulteress, the man in question has to pay a fine of one or two cows. This has tended to make the men careful. Girl babies thus irregularly born are always kept, as they are future assets, but it is said that in cases where the adulterer has not paid his fine a boy may be thrown into a river.

They desire children—as many as possible—and tend them carefully. When a woman is near childbirth and not well the husband may kill a goat on the advice of a medicine man. The latter in such a case takes some blood and smears it on the threshold of the hut to prevent death from coming in. When in the throes of childbirth the woman is usually asked who the father is, and under these circumstances feels bound to tell the truth. It is thus that secret adultery is usually detected.

On the birth of a child they usually kill a fowl or goat to avoid all ills to the baby. The sacrifice is then eaten by the father and friends and some given to the medicine man. After washing the child they put ochre mixed with butter or oil all over it. This is done to both boys and girls. The babies are not taken outside the hut until the light colour of the skin at birth has become dark; this takes about two weeks.

When the child is given a name its head is shaved, and both the mother and the child are anointed with oil. When it is three or four months old they plant a reed or sometimes, now, a banana outside the hut. On this occasion in some parts a woman friend of the mother offers her four mouthfuls of food prepared for this end if the child is male, three if female. If the reed or banana dies it is believed that the child must die. The mother therefore waters the plant daily and takes food to it. If the plant does die and not the baby, as happens not infrequently, they say "*Ori* (spirit) *nea* (child) *ru* (body) *a* (into) *tci* (is)," or that the soul of one of the ancestors buried there has come into the child's body.

The birth of twins is held in varying estimation, according to the section of the tribe. Formerly in Maracha they were taken to the bush and left, while in Terego they were eagerly welcomed. Even when glad to have them they generally consider twins a bad omen. On their birth in certain localities a bull may be killed, with the idea that if this were not done and both babies were alive the father or mother must die. If one of the twins dies, the parents' position is secure.

After birth the mother not uncommonly remains in the house four days, when both are boys, three if both are girls. If of different sexes she comes out on the third day with the girl and the fourth with the boy. This period of seclusion they call *oré* (or *ori* ?), a term connected with the idea of health recovery. On the mother's emergence from the hut her women friends and neighbours come to greet her. They take a baby and put it in her back and try to make her go round the village. This is repeated for the other child. They then put one to each breast.

The women suckle children up to about two years after bearing and are not maritally accessible to their husbands during this period. The children get small portions of other food when about three or four months old. In sickness supernatural aids are always resorted to. They fall into three principal categories:—

(1) A circular pit is made in the ground, leaving a bridge of undisturbed earth across the top. These are made small for children and small matters, large for adults and more important affairs. They are called *bubulé*. When children are sick,

if they are very small they are placed on the centre of the bridge, if big enough to do so they toddle over it, if larger still they conform to the somewhat general adult custom of crawling under it, four times in the case of males, three in that of females. They then take a cock and, holding it by the head, twirl it round until it is dead, which is their usual means of killing one. (At times the sacrifice of a goat replaces this, but never a bullock.) They then spill its blood on the bridge and make a mixture of it with earth which, with a little straw, is painted on the chest of the patient. Sometimes, for the customs vary a little with different sections of the tribe, when a baby or small child is sick a live fowl, as a substitute for it, is passed under the bridge several times backwards and forwards, four times for a boy and three for a girl. It is then twirled round the child's head and the blood utilized as already described. The medicine man may not call for its being killed, however, in which case it may be used on another occasion.

In addition to resorting to this custom in sickness, adults often seek its aid in general adverse circumstances, such as the dying off of cattle, and according to the importance of the matter they go under the bridge from one to four times.

Male adults often resort to this custom when they want a particular girl for a wife. They do so to make Adronga propitious, so that he may influence her inclinations. If she refuses it is often repeated several times.

Each person has his own pit, and after use it is allowed to fall into desuetude.

(2) When a person is sick, particularly a child, a Kaffir-corn plant is pulled up, and a piece of the stem of suitable length is cut out. A grass string (*iabi*) is then tied around it by a medicine man. The whole thing is called *atcifé* and in testing it they say they go *atcifé ndri*. He then takes it to a grave, that of the father, if dead, or the mother, otherwise that of some relation without further distinction. He then tries to slide the string up or down. If it moves, the spirit there does not want to take possession of the sick person. He may try this several times. If it still moves he goes to a stream and kills a fowl to Adronga. He then takes a small calabash filled with hard seeds, which he rattles, and says "*Adoni*" (what? or tell me) a number of times. The rattling is Adronga's voice and the medicine man interprets it as he wishes. Food may be placed on the grave to render the spirit propitious and induce it to take possession. Then the ceremony is over; the child or person shall not die—this they always say.

If the string does not move no food is deposited, because the spirit shows he wants to enter the child, who shall not die. The philosophy of this is that the child's spirit is ill and going to die, and they want another to enter and take its place.

This custom is also used for general augury purposes, and perhaps now in particular when a man misbehaves and wants to know whether the authorities will come to look for him or not. This, like other customs, varies a little in different parts of the tribe.

(3) This consists of the sacrifice of a fowl, goat, sheep or bullock. The larger animals are particularly used when a dear relative, such as a father or single wife, is sick, and apparently fated to die. The killing of the animal, excluding that of the fowl, is always done by putting a spear, arrow or knife into the side of the neck, so that the blood may be collected. If a goat is killed the blood is poured into an earthenware pot. One of the seniors (*mbu*) puts his hands into it and with the crooked fingers and thumb of one hand, the tips of which are covered with blood, taps two or three times on the chest of the sick person. If the malady persists they draw the teeth of the dead goat and make a necklace for the sufferer. The medicine man may come whether called or not. He starts his ceremonies by rattling his gourd and saying, "Tell me, tell me." While he seeks for some oracular reply no one moves except himself as he repeats, "Tell me," until finally he interprets some message. He then pours some blood into his gourd and from it sprinkles all around the body of the patient. Those present, with the exception of the sick person, then eat the goat.

Often also sticks, strips of skin, or occasionally, in imitation of their Alur neighbours, shells are thrown on the ground, and auguries are made according to the position they assume.

When in case of illness it is evident that death must follow, the relatives announce the impending event by a special howl which is recognized by near neighbours, who may come and begin a death dance a little way off. After death a drum is obtained, often from the chief, and a beat peculiar to such occasions summons all neighbours to come to dance. During the dance the women howl.

In one area a person is buried under the granary, which becomes the home of his soul, and a medicine man is not called in, though usually one enters the hut where death occurred, with some of the relatives. He rattles a gourd (*kibuzu*) and wails, and usually states that he has had a reply that the dead is enjoying the new life. He then approaches the body and asks it (with the gourd) whether it wishes its spirit to enter his sister's body. Meanwhile another medicine man approaches the sister, rattling his gourd and telling her the spirit of the dead is coming into her body. If there is no sister they go to the grave on which stones (*onigurn*) have been placed, and the spirit dwells there until perchance it, at some future time, enters some other person's body.

In burial the body may be placed, notably in the Terego area, fully extended on the back, with the head turned to one side and in a naked state, covered with earth. Others, as in Vurra, bind the doubled-up arms and legs with thongs, and place a skin over and another under the body or wrap it in a large one. The body may be in the upright position or on one side. It is, however, usually placed on the left side in the embryonic position, knees drawn up, elbows close to the sides and hands against the face. In some areas the feet point towards the east, the reason of which they do not know, further than it has always been done. The head more usually points

to the North, as they say they came from there. If the person was killed violently he may be buried in a squatting position. The animals,when skins are used (goats or bullocks), are killed immediately after the death of the person involved, and this practice connotes partly the nature of a sacrifice. The meat is eaten by the mourners, but the deceased man's children are not allowed any, though they are allowed to share in the condiments accompanying it. Some meat and grain is usually placed on the grave for the deceased.

A corpse may remain unburied up to eight or nine hours, according to the time of day at which death occurred. Their tests of death are not very accurate, and I have seen a man who came to after being partially buried; he has been an imbecile ever since.

The grave, which is three to five feet deep, may be the ordinary trench, or, after being begun perpendicularly, turn off at an angle of about 45 degrees, or it may assume, in a few areas, an inverted T-shape, this being borrowed from the allied Mundu tribe. It is placed generally, for both men and women, under a granary. A baby, however, is buried to the right of the door of the hut, and a chief in his house, his *kobi* on his head and the skin of a newly killed sheep underneath him.

When one twin dies they do not bury it according to the ordinary custom, but put it in a big pot and close the mouth very tightly in order to keep it from killing the other. They then bury the pot in an ant-hill or marsh.

If the dead is one of the seniors it is the general custom to place stones on the grave, often arranged as pillars supporting a slab. They call the place so made *ori-abi-dri* (spirits-ancestors-of the). When they wish to propitiate their ancestors they kill some domestic animal and pour the blood inside this and put some cooked meat in it (*za-adizaro*—meat-cooked). When the deceased is a child, usually they make a little spirit house (*ori-de-zo*—house-of-spirit) of sticks or reeds, or sometime it may be a little thatch conical roof on supports. These are about a foot in diameter They are found in all but the newest hamlets, and are usually between the supporting posts of the granaries or near the entrances to the living-huts. They put food for the dead in them, which is left for some time and then taken away and eaten. They replace it with some more later, and usually repeat this daily. It is treated like one of the family. They generally show great affection for their dead. An old-established hamlet may have many of these little houses (Pl. XL, Fig. 4).

After a burial, the women of the village dance while singing or chanting on the grave, and thus trample the earth down. They often, using the head as a fulcrum, turn somersaults, injuries resulting in death not being unknown through this.

They do not desert the villages, but the house of the dead is destroyed, or the thatch pulled out, and the granaries overturned with sticks and the earthenware pots dashed on the ground and broken. This is a heavy economic loss to a little community and forms a noteworthy outward sign of their sorrow.

A dance generally follows a death. The chief is usually advised of the loss and they sometimes invite chiefs of adjacent sections of the tribe. The friends of the dead may bring a goat and the women baskets of food, which, as a sign of their sympathy, they prepare for the mourners.

The general *motif* of the dance is to drive evil spirits away. With this end in view spears and bows and arrows are often carried by the men, and they frequently mimic the attitude of driving off an enemy. While dancing they chant without words, to console the relations of the dead. The women beat their hands to wish well to the departed and to inform him (or her) that they enjoy the dance. At intervals a pair of men or women—usually young—leave the dance circle and run to the grass near by, and beat it to keep death from taking others, though it is said that some do this to attract attention and show off their bodies, well-prepared for the occasion.

They dance for two days. It may be the day of the death and the next, or they may miss the second and continue on the third day. They generally drink a great deal, but sometimes, on account of the suddenness of the death, none is ready, and they have to carry on the ceremonies without it. Dancing is usually stopped at about nine o'clock in the evening. If death occurs in the early evening they may content themselves with wails, and forgo dancing.

At one ceremony which I observed for a time in mid-afternoon one house had some of the thatch pulled off, the granaries had been pulled down and the earthenware utensils broken. It was near the site of this destruction that they were dancing. Some of the men had spears or bows and arrows and others reeds in place of them, which is a recent innovation. Some of the women had ashes smeared on the head and body, and many of them were wailing. Their wailing was a repeated dwindling ululation. At the hut near the site of burial all were women. They were sitting down and droning and groaning at intervals. One granary had been thrown down and deroofed, and between its four supports the rough earth was being smoothed over with the hands.

When the husband dies the wife or wives often put a skin on the back and ashes on the head. Women may also do this on the death of a brother. Friends of the dead and people of the immediate sub-chieftancy smear their bodies with flour, earth, ashes or cow-dung. Those of other chieftainships may, in order to make a good appearance, rub themselves with oil, usually semsem.

Before the advent of European control they used to put in the grave food and an alcoholic drink made from Kaffir corn (*ewa*). Now they often refrain on account of the anti-waste European propaganda.

According to information gained from one of the Italian Fathers, when a person dies they believe the soul goes out first to the neighbouring grass or bush. On the third day, when the dance is over, often a brother of the dead kills a bullock. While this is being done a medicine man stands on the grave with a calabash filled with

small stones or seeds, and rattles it so that the spirit of the dead will not come back to worry the village, and partly to keep away evil spirits generally.

The little fetish or spirit hut (*ja-ori*—house of spirit) they build some time after, say, when someone else becomes sick, as it is to invoke the dead to banish the sickness (Pl. XL, Fig. 4). At this time they also cook good food—if possible, fish or meat, or both—at times calling neighbours to enjoy some of it, and they place a portion on a little dish inside or near the spirit house, together with a little beer. They also sprinkle it and the village generally with beer through the agency of some leaves of a tree called *inzu*. Then, with the same leaves, the little hut is beaten, and also the child or any other sick. They consider that the spirits will then be satisfied.

After a month, in some parts, they go to the grave, make it smooth and put red ochre (*eraka*—ochre) on it. They kill a ram or other food-animal to the spirit of the dead to keep it from doing harm to the living. They then have a big dance in honour of the dead.

From cradle to grave the lives of this tribe are saturated with supernatural beliefs, fears, and trusts. They believe the spirit (*ori*—spirit, *orindi*—spirits) of a dead person goes first into the grass or bush and then returns and lives in the top of a hut. Spirits always remain in this world.

There are two deities: *Ori*, a general name of ancestral spirits, who kills people, brings diseases and other evils, and *Adronga* or *Adroa* or *Adro*, who is generally a benevolent god and, like Jehovah, the Creator of men. There is some confusion in their idea of him, for they also believe that he kills people, *i.e.* creates for killing. A missionary told me that, in spite of their determined efforts to discredit Adronga, he had in his riper knowledge come to the conclusion that this god differed little from the Christian Jehovah. They fear Ori more than Adronga. When there are no rains they sacrifice to Adronga.

Some chiefs do not drink beer, others forgo tobacco, these articles being taboo to them.

They often have a large sacred tree which no one cuts. They may rope it off, and they only go near it to make sacrifice. There are two especially sacred trees which are so large and so surrounded by saplings and undergrowth that they may be called groves. They are on the Congo border near Maracha. The more important is called *chiki* and is referred to as the father of the second, which is called *atinakoli*. There is a third named *abi*, adjoining *chiki*, in a hollow of which is deposited a lump of iron and an empty tin box, which was probably obtained in Emin's time, with sundry other articles of veneration. These groves may only be approached by the priest—a hereditary office. Formerly the office and control of the groves was in the hands of the Paranga clan, but many generations ago was sold to the Arol. The present priest is Akuti. He daily takes food to the trees, in each of which lives an enormous sacred python (some say many), which is on intimate and friendly terms

with him. If war is meditated or impending the trees give an oracle by sending out a multitude of little snakes if it is to be war. No unauthorized person may move the lump of iron, which is small, from Abi. It is said that during Belgian occupation a policeman lifted it under orders, but was miraculously rooted to the spot till he had redeposited it.

They may put a cow's horn, leopard's tooth, fish bone, a certain root or other fetish emblem, outside the door or under the granary or attached to special sticks, to drive away sickness. They believe in the occurrence of the evil eye in old women, and resort to some such antidote as referred to here against it.

They are firmly convinced that women, especially those who are elderly and without firm family attachments, commonly kill others with poison—that usually the victim gets thinner and thinner until he dies. Again, they believe that outside the doorways or on paths they place powerful witchcraft poison, so that one passing is touched and swells up and dies. When a woman kills (or is supposed to have done so) the relatives of the deceased feel in duty bound to kill her or one of her relatives. If before this she consents to undergo an ordeal this often suffices. For this purpose they use (1) *ozri*, a decoction of Euphorbia juice, or (2) *Erythrophlæum guiniense*, a respiratory poison. If she vomits these up or survives she goes free. They may give the same poisons to a chicken. In the case of two suspects, one chicken represents each. They are fed with the poison by a friend of the opposing faction, and the chicken which dies indicates the guilty party. Another poison of which I gained no knowledge may be used in this test.

Another test, that of the chicken and stone, is commonly undergone by a person accused of killing by witchcraft or poison. Eight stones are arranged on the circumference of a circle at regular intervals. A small peg is driven into the ground in the centre. To each stone a meaning is given, but only one stone is allotted to the accused. The spaces between the stones are designated "ways of escape." A young chicken is tied by the leg to the peg. Two feathers from its tail are pulled out by the operator, who waves them round the circle once clockwise, once counter-clockwise, at the same time praying the spirits to show by this test whether or not the defendant is guilty. He then, holding the chicken, cuts off its head at one stroke with a knife. Reflex action causes the chicken to flutter round and round the circle at the full length of the string already tied to the peg. If the last flutter lands it on the accused's stone he is guilty, otherwise not. There appears to be no possibility of underhand work in this. In one application of it seen by Mr. J. H. Driberg, A.D.C., in which the accused on the evidence was clearly guilty, ten chickens were so killed in succession, and each time they finally fell on the accused's stone.

To keep thieves from their fields they often place a stone or branches or grass knots on a pole, thus ensuring that death will follow a theft.

On paths one may sometimes see a little pile of stones erected by some person who has fallen down there, this being done in a semi-mirthful, semi-superstitious vein. Or, again, this or an old basket full of stones may have been placed with the hope that, when they are obliged by the Government or chief to carry loads, no pain or illness may overtake them.

On the roads one also encounters broken pots, grass tied in a knot, feathers, perhaps some food or clay figures of elephants. They are in the nature of an exhortation to their ancestors to drive away disease, or to pacify their spirits, but recently have been largely directed against the Europeans, who have brought diseases and many troubles among them. They now ascribe all infectious diseases to European agency, which makes their control and treatment difficult. They really have suffered heavily from epidemic meningitis, smallpox, and influenza since coming under the control of the Uganda Government.

A little house-like structure made all of sticks may be made apart from any grave in order to ask success or help, such as in hunting, sickness, and so on; in it they put some good food. If they gain what they have asked they call it *drile ba* (head good or fortunate), and preserve it; if they do not get what they ask, *drile onzi* (head bad), and they break it.

Before European control they also made a larger hut with sticks and a grass roof (*rubogo* or *romangi*) when they wanted to kill an enemy for vengeance. When the new moon appeared they used to take to it a pot of *ewa*, the alcoholic beverage made from Kaffir corn. The interested man used to take a little of it with a leaf and pour it on the roof of the hut, and also place thereon his arrows and spears. He then went to carry out his purpose. If he was unsuccessful, on his return he went to the medicine man, who tested the situation with the *atcifé*, and if that pointed to success he resumed his efforts. If again unsuccessful, the medicine man proposed to him to make the earth-bridge and carry out the usual sacrifice there. On the bridge he placed his arrows and spears before setting out again. This is falling into desuetude. They now use it in order to have a good crop from their fields and good fortune in hunting or other ventures. They build it always in their own villages.

Recognized rainmakers are very scarce, not more than three, of whom two are principal ones. Each has three or four rain-stones, long cones of quartz symmetrically notched. These were originally obtained from the Bari tribe in war. When rain suffices at the time of harvest the stones are enclosed in a calabash, the small opening of which is then sealed over with soap, and the calabash is kept in a granary. For rain the calabash is broken in a river, the stone washed in it and a sacrifice made.

Another account states that when rain is wanted they cook beer and pour it on the stone. It is then put in a calabash and hidden in a granary. When the chief finds a man who knows where it is he makes him carry it to a hill and sacrifice a goat there. If rain is refractory they beat this man and may make him sacrifice

again until rain comes. Women may conceal rain, but cannot make it. There are therefore no women rainmakers.

The Allah water cult is one that is stated to have begun among the Dinkas, a Nilotic tribe of the Sudan, and to have spread into this district, following the line of advance of Emin Pasha's troops. Those who drank of the water were supposed to develop irresistible strength, and to become invulnerable to guns and spears. This belief gave unity and confidence to various tribes in battle, and led to many overwhelming successes against Nubis, Dervishes and amongst themselves, which were attributed solely to the holy water itself. The Uganda mutiny of 1898 was undoubtedly due to this cult having spread among the Nubi troops at a time when they felt their grievances acutely. A Lugwari leader in one of their fights is said to have held in his hands the emblems of the cult, the Yakani bowl and a branch of the *inzu* tree. In this instance they had one man injured, while they exterminated a force of some eighty Nubis.

Followers of this cult were also led to believe that they would obtain rifles, ammunition, clothes, and immunity from death or arrest. Those who have had the opportunity of drinking it and refused are said to become termites after death. With the stopping of native wars it was lost sight of until recently, when it was revived among the Lugwari. The benefits then promised were preservation from death and epidemics, the reappearance of their ancestors on earth, that their dead cattle would come to life, immunity against Government rifles, which would only fire water, promises of rifles which would enable them to clear the Europeans out of their lands, that they need not pay taxes, and could flout Government orders. Probably its recrudescence here was precipitated by epidemics of meningitis, and later influenza, breaking out among them, the blame for which they laid on the Europeans. The water used came from two men living in the Southern Sudan, to the north of the West Nile District. Pilgrims may drink on the spot for a certain payment, or at a greater price may take some away for dilution and further distribution. It is generally known as Yakani, but has other names, and these are used as passwords. Associated with the cult is a Yakani shrine and an open space with a pole erected in it. The pole among the Lugwari is from a tree called *kuzu*. At the top of it is fastened a branch of a shrub called *inzu*, which is said to belong specifically to Yakani rites. A sacred goat also appeared as part of the ceremonial, and later a white calf, both ornamented with bracelets and ear ornaments. Recent Government interference has largely discredited this cult.

Medicine men (*ojo*) have long hair and are somewhat wild-looking. The office is hereditary. Women may follow this calling. At the onset of sickness they are called in, or, if they know of it, may go without being called. They make their living by this, and may really have some medical secrets. When one eats with others he touches food to the top of the head and under the chin. When he hiccoughs, it means that the spirit asks through him for more food.

If a man wishes to state under oath that he has not stolen he will eat some mud and say, "It will kill me if I am guilty." Mud may be substituted by human dung or by drinking the blood of a baby who has died a natural death.

Ordinarily they do not travel far from their homes. When they do set out on a long journey they tie some standing grass near the path into knots, four on each side of it, and spit on each knot. They make a prayer to Adronga that sickness (often they specify stomach troubles such as dysentery, *ari-ka*—blood-stools) or some other evil may not overtake them. When other people pass they make another similar knot, so that a great many may be seen. No one dares to interfere with them. This is a very universal custom in the tribe, though there are variations according to the district.

In some parts when corn is ripe and abundant they put semsem in pots on the fire, and when it sputters from the heat they take a broken piece of pottery, put some on it, and go to the boundary of the field, where a bush called *adu* grows, and deposit there their *tibi* (accessory dish of a condimentary nature, such as semsem). If there is no such bush they make a little hut and inside it place the food for Adronga, as a sign of gratitude for the abundance of the harvest. This is comparable to our thanksgiving festival. When food is scarce they do nothing.

The custom of vendetta has been a rule with the tribe—a life for a life. Since European occupation this has been rendered difficult, and some, deterred thus from following up their desires, let their hair grow long in order not to forget, or let it appear that they forget, the situation. Naturally, as among all rude tribes, the victim was not always the guilty person.

A name is given to a baby by the mother and/or father—on the third day to a girl, on the fourth to a boy. On that day the mother is washed. In some parts there is no fixed date for the naming, and it may be given when the child is one or two months old. Ordinarily one is given by the father and one by the mother, while one may be given by a brother. Little by little one comes to be more used than the others. When one grows up and joins in the dancing, another name is given by the people, exclusive of the relatives, embodying some outstanding quality. Children generally prefer the mother's name, but are also fond of that given by the father. Out of a hundred men asked their names, probably eighty announce at once that given by the mother. This is indicative of the veneration shown for mothers. Men who have left their paternal homes continually want to visit their mothers, but rarely show any such desire in respect of their fathers. The name given by friends is not used in the family, and only by those outside it in games and dances. All names have a reason, and are usually given in close relation to some fact or feature connected with the family. Thus, if about the time of birth the father dies, the child may be named *Drazo* (*dra* = dead, *zo* = house—or the dead is in the house). Other examples are:—(1) Mother's name, *O* = she, *le* = likes, *buru* = village (meaning her premarital village), or "she likes to go home," referring to the fact that the mother

had been quarrelling with the father; in this case the father's name was *Meriko*, meaning angry, from his being angry at the mother's wanting to go home; this boy was too young to have a friend's name. (2) Mother's name, *Emuda* (*emu* = he goes, *da* = well), from the fact that the father and mother were quarrelling, the mother told the husband to go away, and he said, "I go," the child therefore being called "He goes well"; the father's name was *Ondoko* (*ondo* = Kaffir corn, *eka* = red), signifying that when he was born his body was red, like Kaffir corn. (3) Mother's name forgotten; father's name, *Yukuru*, which means a widespread epidemic disease; about the time this boy was born several brothers and others of the family died of smallpox; brother's name, *Nyangya*, meaning a very little baby—he was prematurely born. This boy gave the brother's name first, which is exceptional. (4) Mother's name, *Abiria* (*abiri* = famine, *a* = in—or born during famine). (5) Mother's name *Alijaa* = I go away; the mother and father have quarrelled; the mother said, "You do not like me, let us part"; the name she gave was the father's reply; this boy forgot his father's name. (6) The mother's name was not remembered by this boy; father's name, *Ti-Mbaro* (*ti* = mouth, *mbaro* or *mboro* = large—the father told his wife her mouth was very large, meaning she was never silent); *ti mbo* would mean "the mouth is large"; the *ro* added to the verb makes it adjectival. (7) Mother's name, *Ta-ako-a* (*ta* = food, *ako* = without, *a* = inside—the girl's mother had no milk; she forgets her father's name).

Dancing forms their sole source of active amusement. They dance in a circle to the beat of a drum. Men and women mingle, but there is no pairing or embracing, as in our dances. Much cleverness is shown by the drummers in the alteration of the rhythm, but there is little variety in the steps of the dance, which consists of simple but strenuous jogging up and down while moving round in a circle. In this they differ from their neighbours, who have many picturesque variations, some of which are symbolic. They frequently leave the dance circle and rush off some little distance and then return.

The attainments of the Lugwari in the arts are not high. In ironwork they make hoes, spear-heads, arrow-heads, the small knives which women carry. Their pottery is very roughly finished, though sometimes crude geometrical ornamentation is attempted. They weave baskets, simple and strong, which are usually devoid of any ornamentation, and where this does occur it is of a very simple nature. They make no attempt to weave cloth.

Pots are generally called *emvu*, which term also includes the pottery part of the bellows used for iron smelting. They are made by the women. *Otaka* is a bowl for food; it has a large mouth, larger than usually seen amongst African tribes, the body being eight or ten inches in diameter. Those with small mouths and large bellies are for carrying and storing water, and are called *moda*. They may be anything up to 12 inches in diameter. They have small pots (*oteku*), for cooking condiments to eat with the Kaffir-corn mush, which have a relatively large mouth.



FIG. 1.—IN THE MARKET-PLACE, ARUA.



FIG. 2.—FOUR TYPICAL LUGWARI.

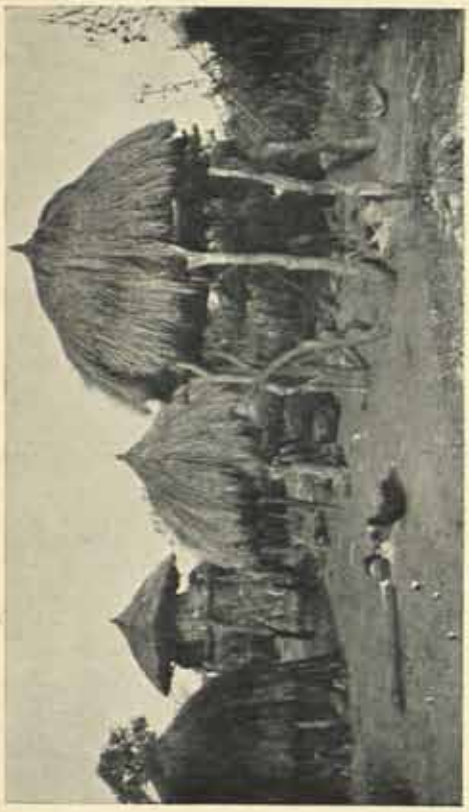


FIG. 2.—GRANARIES, LUGWARI VILLAGE, KOBBOKO, UGANDA.



FIG. 4.—SMALL SPIRIT HOUSE UNDER GRANARY, LUGWARA (NEAR AEUA).

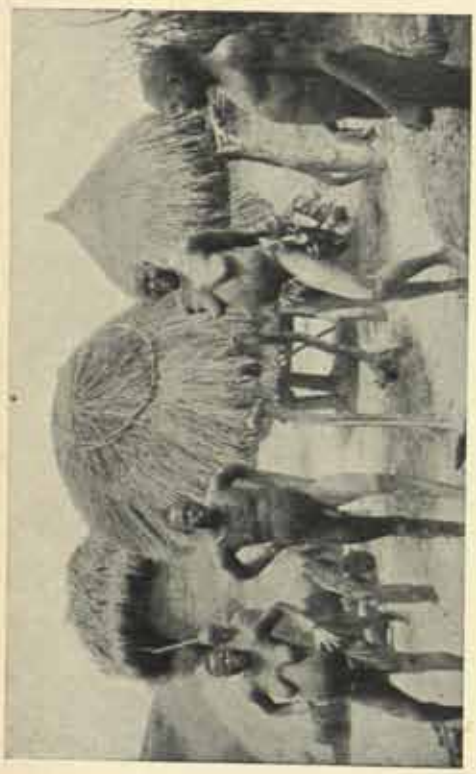


FIG. 1.—LUGWARI VILLAGE SCENE.



FIG. 3.—TWO MEN WITH HOES.

Otekungwa is a small bowl on a pedestal used for eating the condiments when cooked. They have also *obi*, large pots up to 3 feet high, with relatively small mouths, perhaps 6 inches in diameter, in which they ferment beer.

In order to smelt iron a blacksmith works from about 8 a.m. to, say, 4 p.m. The bellows apparatus is ingeniously contrived. Over a clay bowl with a lip around the rim a piece of loose skin is secured by being bound under the projecting rim. To the centre of the skin is attached a long stick, which is used for pumping. A spout leads out of the side of the bowl. Usually two such contrivances are used, so that the operator, using each hand alternately, ensures a more continuous flow of air. The spouts are so arranged as to play into the large end of a trumpet-shaped clay piece, which concentrates the air on the fire. The whole apparatus is generally placed in a gourd-shaped depression in the ground.

When a blacksmith is making iron he may not go into the house of a wife. When the bellows blow all people near must be quiet. There must be no speaking when fusion occurs. The iron is left two days to cool; they call it *ebo*. In making a hoe they place the iron on a rock, beating it first with a big stone and then finish with an iron hammer. The latter is not heavy enough for the initial work.

In this short survey of the tribe it is evident that the Lugwari, in respect of attainments and customs, are among the least advanced of the African tribes, and should receive further study before their civilization is submerged by that which slowly but surely will flow in upon them.

MENDELIAN HEREDITY AND RACIAL DIFFERENCES.

By Prof. R. Ruggles Gates, Ph.D., F.L.S.

Although Mendelian inheritance is widely known from experiments with plants and animals, its widespread occurrence in man has not yet been generally recognized by anthropologists. The fact may be pointed out that Mendelian behaviour consists essentially in, or rather depends upon, the segregation of fixed germinal units. Although modern genetics depends so largely upon the study of Mendelian inheritance and its physical basis in the germ cells, yet anthropologists appear to have been as yet but little influenced by it in their study of human differences.

In this article one can only refer briefly to a few of the characters, such as eye-colour, stature, and cephalic index, in regard to the inheritance of which data are rapidly accumulating. This must sooner or later be taken into account by the physical anthropologist, not only because it shows how differences are being handed down from generation to generation, but also because it must fundamentally affect the anthropologist's conception of a *race* within the human species.

It is clear that the genetical point of view, which has been so successfully applied to the study of variation and inheritance in other organisms, applies equally to man. Some time ago (Gates, 1923) I had occasion to bring together the main facts of Mendelian inheritance in mankind. These records show that where the pedigrees have been carefully compiled with a view to finding the method of inheritance, innumerable peculiarities and abnormalities are found to be inherited as simple Mendelian differences, dominant or recessive to the normal, or sex-linked in various ways.

The literature on this subject has grown very rapidly in recent years. In innumerable pedigrees a character has been shown to follow the simple Mendelian rules in descent. Such conditions as albinism are, usually at least, recessive in inheritance, in man as well as in animals. The same is true of, for example, alkaptanuria. This chemical peculiarity is known not only in man but also in horses. Many digital abnormalities, such as brachydactyly, are generally regarded as dominant, although it is possible that some of them may be non-viable in the homozygous condition, in which case they should be placed in the class of lethal factors.

Cases are on record of digital and facial peculiarities being inherited for five centuries, through as many as fourteen generations. Even such slight aberrations as a bilobed right ear or a pit in the left ear may be inherited as a dominant through several generations, though occasionally "skipping a generation." Sometimes the

peculiarity is a variable one, as split foot or "lobster claw," but often it is remarkably fixed and uniform. Unless some unforeseen disturbance occurs the inheritance may be expected to go on indefinitely.

Abnormalities are by no means confined to civilized peoples, but they occur, probably with equal frequency, in savage races, where they are usually eliminated by infanticide or the struggle for existence.

It is sometimes stated that Mendelian inheritance or segregation of characters applies only to abnormalities, and that racial differences follow other rules and do not segregate. The known facts do not justify such a sharp distinction.

In the first place, as Haddon (1924) points out in his valuable book, anthropologists are not agreed as to what constitutes a race, and it is possible that general biologists who have had an acquaintance with many species of organisms and their variations may be able to contribute something to the decision as to what characters should be regarded as racial—a subject on which anthropologists notoriously disagree. Haddon (*l.c.*, p. 1), however, is clearly in accord with the modern genetic point of view when he says, "Race names, such as Nordic and Alpine, are merely convenient abstractions helping us to appreciate broad facts. A race type exists mainly in our own minds." All human races appear to be of mixed origin, and it may be expected that the numerous differential elements contained in such a race are being reshuffled in each generation. Nevertheless, isolation, geographical or otherwise, combined with inbreeding, has doubtless sometimes led, as in parts of Scandinavia, to the production of a local group agreeing in all racial characters.

The generally recognized racial characters relate chiefly to the hair-shape and colour, skin-colour, stature, head-form, face, nose, and the shape and colour of the eyes. As regards these differences eye-colour is perhaps the simplest in inheritance. It seems highly probable that the lighter eye and skin colours have arisen as germinal mutations from the darker ones in the evolution of man. The latter characters are probably in some sense adaptive, since the presence of pigment in the eye and skin appears to be a protection in tropical climates. But one cannot believe that this is true of the straight, wavy, or woolly hair which is such a conspicuous racial character. Haddon suggests that "Climatic conditions probably account indirectly for the character of the hair." This is difficult to credit, especially when one remembers that, *e.g.* Mongoloids usually have straight hair whether they are Arctic Eskimo or tropical Carib Indians, while the woolly-haired negro of Africa is under conditions similar to those of the straight-haired Carib. Hair differences may have arisen as mutations, but I think we have no evidence at present as to how they became linked with differences in skin-colour and other features to form the main colour-types of mankind. If these colour-types could be viewed from a quite impersonal biological point of view it is probable that they would be recognized as differing in ways that are analogous to the differences between many animal species.

Italian anthropologists appear to have done essentially this in their trinomial system of nomenclature of the races of man. Interfertility has long ceased to be a sufficient criterion of species.

When we deal with such racial characters as the form of the head, face, and nose, we are concerned with matters of relative dimensions or shape. That they are inherited there can be no doubt, but the inheritance of shapes is the least satisfactory of all the fields of genetics. The significance of cephalic indices will be discussed later. The attractive theory of Keith (1920) that not only skin-colour but also stature and facial features are controlled and determined in their development by differences in hormone secretion would, if true, make the analysis of the inheritance of these differences more difficult, since they would depend upon an internal mechanism of hormone differences which are themselves inherited. Obviously, even if segregation of inherited differences in hormone activity were taking place, it would be very difficult to prove from the observation of racial crosses. Critical genetical experiment has shown, however, that germinal segregation may be taking place when casual observation would lead to the opposite conclusion.

To the writer it seems that no field in physical anthropology is more fundamental, or is at present in greater need of exploration, than an accurate determination of the results of interracial crosses by someone who is trained both as a geneticist and an anthropologist. Such an individual should be able to visit various parts of the world where interracial crosses have taken place, and where the original crosses are so recent that there are not more than three or four generations of descendants. He should then be able to compile genealogies and trace the inheritance of racial differences through at least three generations of individuals who can be directly compared with each other. Only in this way can a satisfactory study of interracial inheritance be made. Results of the first importance may be expected to accrue from such a study. The fact that in negro-white crosses, for example, the hair is sometimes wavy on the sides of the head and kinky on the vertex, shows that peculiar results may sometimes be expected. The urgency of these problems also needs emphasis, for it is essential that the original parents of the cross be known at least by name, and with primitive races, even more than in civilized communities, it is seldom possible to get accurate information about the features and characteristics of ancestors removed more than three generations. Where intercrossing has been taking place for more than a century there is always doubt about the exact antecedents of the earlier ancestors, as I have found in studying the pedigrees of Indian-white half-breeds in Northern Ontario.

We may now consider briefly the inheritance of some racial differences. Stature and eye-colour are both regarded as racial characters, but Galton (1889) contrasted them in their inheritance. He regarded them as "more contrasted in hereditary behaviour than perhaps any other common qualities," stature usually giving a "blended" inheritance, while with eye-colour the transmission is usually

"alternative." But he recognizes that "the blending in stature is due to its being the aggregate of the quasi-independent inheritance of many separate parts."

Eye-colour was the first character in man to be recognized as Mendelian in its inheritance. That eye-colour shows segregation in families is well known. But segregation also occurs in interracial crosses, as I have observed in later generations of mixed descendants from original crosses between blue-eyed white men and "black-eyed" Indian women in North America. There is nothing at present to indicate that its inheritance in such crosses differs from that within a single race. The subject of eye-colour inheritance has been considered elsewhere (Gates, 1923), and only brief reference can be made to it here. Hurst (1908) examined the eyes of a number of English families, and was the first to point out that blue and brown eyes form a Mendelian pair of characters. The Davenports (1907) made a similar suggestion about the same time. In the blue eye brown melanin pigment is absent from the front of the iris, and according to Hurst it is the presence or absence of this anterior pigment which constitutes a Mendelian pair. Only in the albino eye is pigment absent from the inner surface of the iris. Various other complications enter into the study of eye-colour, so that careful examination by one observer of the eyes of every individual in a particular collection of data is necessary. Conclusions based upon the reports of parents as to the eye-colour of their children are of very little value, since the parents will not be in agreement as to how the various shades and arrangements of pigment should be denominated.

Bryn (1920) has made further studies of eye-colour, and concludes that (1) if both parents and grandparents have blue eyes the children will have blue eyes; (2) if the parents have blue eyes but some of the grandparents have brownish eyes, about 10 per cent. of the children will have brownish eyes; (3) if both parents have brown eyes, the children will be on the average one-quarter blue-eyed and three-quarters brown-eyed; (4) when the parents have "mixed" eye-colour, on the average one-quarter of the children will have blue eyes, one-quarter brown, and one-half "mixed"; (5) blue is found to be recessive to all grades of brown. These results serve to emphasize the need for further study of this subject.

As regards stature the data bearing on this subject, both genetical and anthropological, are much more extensive. Quetelet made it the first subject of statistical study in the foundation of anthropometry. Since he first used stature to show how variations follow the binomial curve, similar data have been collected for innumerable races and groups of men. No doubt the mode of such a curve has a certain significance as representing the condition of greatest frequency; but it does not follow, as was formerly assumed, that departures from the mode represent uninherited fluctuations. They may equally well, and often do, represent inherited germinal differences which are being recombined and regrouped in every generation.

Certain aspects of the subject have been considered at some length elsewhere (Gates, 1923, pp. 27–44). There is a considerable literature on the genetics of

size-inheritance in animals, all of which leads to certain points of view which are applicable to man. A few of these results may briefly be indicated. Punnett and Bailey have studied the inheritance of weight in poultry (1914) and rabbits (1918). They explain the results obtained in crossing large and small breeds of poultry by assuming the presence of four genetic factors independently affecting size. In rabbit crosses they studied the growth-curves and concluded that slowness in reaching maturity is not always correlated with large size. Castle (1922), however, from a study of the growth-curves in pure and hybrid races of rabbits, reaches the conclusion that in small (Polish) rabbits the initial weight is less, the growth-rate less, and the completion of growth earlier. He moreover considers that all size-factors affect the body as a whole and not particular organs. Nevertheless, Wright (1918), from an analysis of some of Castle's measurements, finds that while there is high correlation between the lengths of certain bones, yet there are groups of bones which vary independently of the rest of the skeleton.

Davenport (1917), from numerous measurements of the elements that go to make up stature in man, concludes that the correlation between the length of different segments of the body is low, and hence that there are independent size-factors affecting, for example, length of leg, trunk, neck and head. Probably it will be shown by further study that there are not only factors affecting the size of particular organs, but also others, as Davenport agrees, affecting the size of the body as a whole. These may be under hormone control, and the time of maturity, also an inherited racial condition, must affect the resulting stature as well. This brief statement is merely sufficient to indicate some of the present problems in size-inheritance and the necessity for the extensive application of experimental and physiological data and observations in any adequate study of inheritance of stature in man. While stature is characteristic in many races it is clearly not a unitary thing; but the stature of any individual is the resultant of many diverse inherited elements acting under a particular set of environmental conditions. How little significance may be attached to the determination of mean stature as a racial character is shown by Wood Jones and Campbell (1925) in a paper on the anthropometry of Australian aboriginals. Their own measurements of 10 natives and the measurements of three other investigators may be compared in the following table:—

Mean Stature.	♂	♀	
1608·6 mm.	1652	1543	Wood Jones and Campbell.
1626·4 mm.	1671·3	1522·5	B. Smyth.
1718 mm.	—	—	Topinard.
1575 mm.	—	—	Lesson.

Similarly they obtained a cephalic index of 74·6, while other records range from 69·6 to 75, all therefore showing dolichocephaly, of which the Australian

aborigines represent an extreme type. It has been suggested, on grounds of language, that two or more intermingled stocks may be represented in the Australian, which might, of course, account for these divergences. The presence of two stocks is borne out by differences in skin-colour, hair, and features, the darker Papuan stock having come in later. Nevertheless, it is possible that these differences have arisen as variations in one stock.

We may turn now to the cephalic index, on which some interesting work has recently appeared. There has been a considerable literature in recent years on the inheritance of head-form. It is clear that brachycephaly and dolichocephaly are not determined by a simple Mendelian pair of factors. The work of Frets, Hildén and others indicates that the cephalic index may be determined by several cumulative polymeric factors, *i.e.* genetic factors each of which produces a certain transition from dolichocephaly towards brachycephaly. To this extent head-form may be comparable with stature, in which we have already seen that a number of independent factors are concerned in producing the total result.

The cephalic index has been regarded by anthropologists as an important index of race since the time of Anders Retzius. According to Haddon (1924), with a C.I. of less than 75 a skull should be classed as dolichocephalic, 75–80 as mesocephalic, and over 80 as brachycephalic. But he shows that in many races there is a wide range in the C.I.[1] Its importance as a racial distinguishing character has probably been much exaggerated. The length-breadth index, as the most convenient and the most obvious measurement which can be made on a skull, has been taken in countless cases where few or no other data are available.

In a number of papers the cephalic indices of ancestors and their descendants have been compared. Thus B. Hagen (1906) concluded from a study of the heads of Malay hybrids that brachycephaly is dominant to dolichocephaly. Boas (1907) found a splitting or segregation in the C.I. of Jewish families in America. Others reached somewhat different and less definite results. In a study of the Boer-Hottentot hybrids, in which the parent races have very different head-index, E. Fischer (1913) concluded that the index very probably followed Mendel's law in inheritance. H. Bryn (1920) has studied the head-form in two Norwegian districts. He found segregation of the index in the offspring, and that brachycephaly was dominant to dolicho- and mesocephaly.[2] He also found certain cases in which dolichocephaly appeared to be epistatic to mesocephaly. But Hildén (1925) shows that this assumption is unnecessary. Hauschild (1921) made a study of prehistoric

[1] This is well illustrated by a recent paper of Ruhnau (1925), giving measurements of the population of the little East Friesian island of Spiekeroog. The inhabitants number 215, and are practically all intermarried, yet the cephalic index for 63 women ranges from 73·3 to 92·4. The average value, 80·45, can have very little meaning.

[2] Bryn thinks that where brachycephaly is inherited from the father the sons are more pronouncedly brachycephalic than the daughters, but where brachycephaly is due to the mother the daughters are more pronouncedly brachycephalic than the sons.

and early historic skulls in Lower Saxony, and reached the conclusion that the law of segregation in head-form would hold for these. But his results are not of critical value.

The fullest study as regards numbers has been made by Frets, a Dutch investigator, who, in a series of papers (1917–23), considers the results of head measurements of 3,600 individuals belonging to 360 families. He compared parents with their children, and concluded that head-form depended upon several factors, with intermediacy (*i.e.* without dominance) in the hybrid (heterozygous) condition. Later he concluded that brachycephaly in general was more or less dominant to dolichocephaly. But he found cases of microbrachycephaly (small round heads) which he believed were recessive to dolichocephaly. He also thought it necessary to assume prepotency in certain cases, but Hildén has since shown from his data that this assumption is unnecessary.

Frets treated his data statistically and grouped his measurements in a very peculiar way, which made it necessary to regroup his data in order to analyse them genetically. Thus his categories included: (1) Those in which there is no difference between the indices of the parents and large differences between those of the children; (2) indices of children further apart than those of the parents; (3) indices of children nearer together than those of the parents; (4) no differences between indices of parents and children, etc. These very ungenetical groupings were unsatisfactory for any analysis. Hildén (1925) states that he regrouped Frets' data and then found it in general agreement with his own results.

Frets concluded from cases where the children surpass the parents in both directions, *i.e.* some more dolichocephalic and some more brachycephalic than either parent, that (1) there is a large non-hereditary variability; (2) there is segregation; (3) high index is dominant to low, with a large range of variation in the heterozygotes. He also concludes that illnesses in early life affect the head-form, and he states that "the heads with high indices are upon an average somewhat smaller than those with low indices."

In his interpretations Frets assumes that various factors act separately on the length and breadth of the skull and not on the form as such. But his material is not sufficient for a study of the inheritance of absolute head measurements, since only adult measurements can be used for this purpose. Frets (1920) concludes that—

Each	length-factor	in	man	adds	0·40 cm.	to the	head length.
,,	,,	,,	woman	,,	0·38 cm.	,,	,,
,,	breadth	,,	man	,,	0·32 cm.	,,	,,
,,	,,	,,	woman	,,	0·30 cm.	,,	,,

These assumptions strike one as at least rather unbiological, and Frets' suggestion that 12 or 13 factors are involved in head-shape as only a guess.

Hildén measured the heads and ears of the population, numbering 268, of the little island of Runö in the Eastern Baltic. These people speak a very ancient form of Swedish, and are descended chiefly from Estonian (Finnish) women who followed their Swedish husbands to the island. The pedigrees of families were obtained from the church registers, and the people were found to be much intermarried, as is usual in isolated communities. Of this population 116 men and boys and 116 women and girls were examined, the remainder being invalids or infants. The cephalic index was found to be always a little higher for women than men, and it also changes with age up to 20 years.[1] Thus Hildén found that at the age of 2–4 years the average cephalic index was 83, while it steadily decreased until at 20, or over, it was 80·4. The sex-differences in the skull may, of course, be influenced by internal secretions. For adult males the mode was 78–80, females 80–82. This is high mesocephaly or low brachycephaly. When plotted separately both sexes thus showed a two-peaked or bimodal curve. Since the difference is only two units in each case, it is difficult to say what the explanation may be, but the author attributes it to the derivation of the population from crosses between two different races. Fischer (1923) states that not only the Boer-Hottentots of South-West Africa but also the Indian-white crosses in North America show a two-peaked curve. This supports Hildén's interpretation, but his data are too few to attach great weight to them. If several factors are concerned in the determination of the rounder heads in each race one might expect to find that the curve for the cephalic indices of the offspring would have several peaks.

When the indices of parents and children are compared the results show that brachycephaly in general is dominant to dolichocephaly in the cases studied. This may be explained by a theory of cumulative polymeric factors for shortheadedness, each factor when present reducing the cephalic index by a certain amount.

In studying such data several facts have to be borne in mind:—

1. There is a relation between head-shape and stature. According to Fischer (1923), with increasing body length the growth in length of the skull is somewhat more or faster than in breadth, so that tall individuals will tend to be more dolichocephalic than short ones. This may be because the same factor increases length of skull and limb bones. The degree of correlation between them might also vary from race to race. Reid and Mulligan (1925) have recently published a careful study of the correlation between stature and length and breadth of head in students from the north-eastern counties of Scotland. They find that stature, on the average, varies directly with head-length, and that it varies independently of head-breadth except in individuals of the 17-year-old group. These results were confirmed by the calculation of the cephalic indices, which tended to vary inversely to the stature except in the 17-year-old group, in which the correlation was negligible. The highest coefficient of correlation was for stature and head-length, in students of 21 and upwards (196 cases).

[1] That children generally have rounder heads than adults is, of course, well known.

It amounted to $+0{\cdot}3686 \pm {\cdot}0416$, while for the same group the negative correlation between stature and cephalic index was $-{\cdot}2565 \pm {\cdot}0450$.

2. Since children have a higher C.I. than adults, the index of children should be reduced by one or two for comparison with that of adults.

3. It has been found that (Fischer, 1923 (*b*)) if rats are fed for five to eight weeks on food devoid of vitamin A, not only the size but also the shape of the head is changed. Probably the head-shape in man is affected by similar agencies.

These and similar considerations affect the interpretation of indices in parents and children. Boas (1912) made an extensive statistical study of immigrants into the United States and their descendants. He reached conclusions regarding changes in head-shape of the descendants of immigrants, which are difficult to set aside, but which require confirmation before they are accepted. He found, for example, that the C.I. of Sicilian immigrants born in Sicily was about 78, while for their descendants born in America it is over 80. Moreover, this difference existed, more or less consistently, for American-born and foreign-born of corresponding ages ranging from 5 to 20 years or more. On the contrary, Eastern European Hebrews were found to have a C.I. of about 83, while their descendants of corresponding age born in America had a C.I. of 81. If there is no statistical fallacy involved and the data were collected with sufficient uniformity, this would mean that the Sicilians and Hebrews both tended, under the American environment, to approach a mean condition from opposite directions, the narrow-headed Sicilians becoming more brachycephalic and the broader-headed Jews becoming less so. It is further concluded from the statistics that the longer the parents have been in America the greater is the divergence of their descendants from the European type. Similar conclusions have been drawn with regard to the Scotch and other races in America. Boas is convinced that there are "not only changes in the rate of development of immigrants, but there is also a far-reaching change in the type—a change which cannot be ascribed to selection or mixture, but which can only be explained as due directly to the influence of environment." If these conclusions are sound it follows that the C.I. of a race may change when it migrates to a different set of conditions.

The general scepticism with regard to these results of Boas appears to be fully justified by the more recent work. For example, Kirkconnell (1925) points out that the C.I.'s of his father and mother were respectively 85 and 72, while of the children, in order of age, they were 82, 85, 68, 73, and 83. Thus three were brachycephalic like the father and two hyperdolichocephalic like the mother. They also resembled in other respects the same parent whose cephalic index they had inherited. Yet all the ancestors of this family had lived in the same locality in Ontario for over a century. The author's explanation of these C.I.'s is by the Mendelian segregation of inherited differences.

In contrast with these statistical results, experiments in transplanting sub-species of animals tend to emphasize the stability of the sub-specific characters. Thus Sumner (1924) introduced two wild sub-species of the mouse *Peromyscus maniculatus* into the laboratory, and bred them independently for six years on the coast of Southern California. One sub-species, *rubidus*, was from the north-west coast of California, in a much cooler climate, the other, *sonoriensis*, is native to the hot Mohave Desert. Under the new conditions of captivity both races underwent changes in such features as length of body, tail and foot, as well as in pigmentation, but these changes were not in the direction of making them more like the local race, *gambeli*; nor was there any tendency for the two introduced strains to converge under a common environment.

If C.I. in man is so much more easily modified, then it might be concluded that such indices are not truly "racial" characters. In this respect they would be contrasted with hair, skin and eye characters in man.

Spaniards born in Porto Rico are also (Boas, 1920) found to have rounder heads than their ancestors born in Spain or the Canary Islands. The C.I.'s are found to be respectively 79·7 and 82·8, but the ancestry of the Porto Ricans studied is too mixed and uncertain for these results to have much certainty. As Boas himself recognizes, they might be explained by an admixture of native brachycephalic Indian blood. This is an example of the way in which studies of mixed populations in which intercrossing began long ago are apt to lead to more or less unprofitable speculation regarding ancestry.

Fischer (1923) further states that the upper classes, both in Europe and Japan, have finer, smaller and narrower heads than the lower classes. These differences may, of course, be racial, or they might be nutritional. Since the ultimate size of the body depends partly upon nourishment this may in turn affect the head-shape. In any case it is clear that external conditions influence considerably the C.I.

Returning to Hildén's measurements of parents and children, his results indicate that parents who are phenotypically (externally) alike are not always genotypically (germinally) alike. Thus assuming four factors for increase in index, one might be AABBccdd, another aabbCCDD, etc. Caution is necessary in recognizing also that a small difference in C.I. may mean nothing at all. Thus in identical twins the C.I.'s were given as 78·5 and 78·9. But the actual measurements were: (*a*) 191 and 150; (*b*) 190 and 149. Since the records are evidently made to the nearest mm., it is clear that less than 0·5 mm. difference may have been involved in these head measurements. The measurements themselves are not likely to be accurate to more than 0·5 mm.

Neither in the data of Hildén nor Frets were there any marriages between ultradolichocephalics or hyperbrachycephalics. The children from such marriages should furnish important evidence on the inheritance of head-form. On a

multiple-factor theory, with dolichocephaly recessive, two ultradolichocephals should produce children all like themselves, while two hyperbrachycephals, if heterozygous, would produce a range of skull-shapes.

Schreiner (1924) has made a study of inheritance of head-form in Norwegian recruits and Lapp families. She considers that the C.I. has been given too high value as a racial character, and points out that very different skulls may have the same racial index, and also that there is frequently asymmetry in head development. In accordance with Toldt, she suggests that head-form may depend upon primary factors affecting the chondrocranium and secondary factors influencing the later growth of the skull. The hereditary factors are regarded simply as developmental tendencies. This seems a very just point of view. Her conclusion is stated in the following words: "Die Kopfform kommt durch ein Zusammenwirken mehrerer Erbfaktoren und auch anderer Momente zu Stande, über deren Natur und Bedeutung noch alles näheres zu ermitteln ist."

It thus appears that such "racial" characters as stature and C.I. do not differ in their hereditary behaviour from size and shape differences generally. They have no special virtue as being racial distinctions. Some of the difficulties in connection with the study of such characters in animals and man have been pointed out. It is probably only by more extensive experiments with lower organisms that the problems of size and shape inheritance in man can be fully elucidated. But there is great and urgent need for accurate observations on the results of interracial crosses in mankind.

In this connection brief reference may be made to some observations of Indian-white half-breeds instituted in the summer of 1924 in the Temagami district of Northern Ontario. It is hoped later to publish a full account of these observations, with special reference to skin-colour and eye-colour. Here it may be pointed out that segregation was found to occur, at least in certain cases, both as regards white skin and essentially blue eyes. Moreover, the segregation of these two characters was independent, certain individuals of intermediate skin-colour having blue eyes with only a little brown pigment.

It may be added that some recent observations of my own on crosses between Europeans and negroes in Brazil make it clear that complete segregation between black skin-colour and negro features can occur. One finds occasional cases of men with completely European physiognomy (including non-kinky hair) and mentality combined with dark skin, and also of negroid features combined with a white skin. The inheritance of skin-colour in man has not been discussed here because I hope to deal with it later in another connection.

Finally it may be added that Haecker (1918), in an interesting discussion of racial inheritance, takes the view that in racial crosses some characters, such as cephalic index and skin-colour, blend, while others segregate. The characters which behave as a unit in inheritance he regards as simple in their development.

Here he cites eye-colour and the "Mongolian spot," a patch of pigmented skin which occurs frequently, but not universally, in Mongolians, near the base of the spinal column. The "blending" characters he regards as of complex origin and development. He points out that Magyars and Turks are diluted Mongols, and refers to the observations of Sperck in Vienna, who found that in Viennese the "Mongol Fleck" occurs only in individuals one of whose ascendants was a Magyar.

One other topic which claims attention on account of recent work, is the subject of blood-groups in man. In 1908 Epstein and Ottenberg suggested that these differences were inherited in Mendelian fashion, and Von Dungern and Hirschfeld in 1910–11 made it clear that there were four blood-groups involving the presence or absence of two independent genetic factors A and B. In Group I both these factors are absent (and this may have been the primitive condition), in Group II, A only is present, in Group III, B, while Group IV contains both A and B. Dogs have similarly been shown to belong to two antigen types or biochemical races. Forty-five horses were recently examined by Hirschfeld, who placed them in three classes, 30 per cent. O, 55 per cent. A and 15 per cent. B.

When the blood of two individuals belonging to the same group is intermingled no reaction occurs; but if the blood from an individual inheriting A (*i.e.* germinally AA or A*a*) is injected into one having no A (*i.e.* germinally *aa*), agglutination of the red corpuscles by the introduced serum takes place and an antibody is produced. Similarly with B. Various dihybrid ratios are thus involved in crosses of human individuals inheriting different genetic constitutions for producing isoagglutinins. There appears to be complete dominance, a single dose of a factor A or B giving the same effect as a double dose.

Von Dungern and Hirschfeld tested the blood of 348 individuals belonging to seventy-two families, and showed that there were four different kinds of blood sera, which were determined by the independent inheritance of two pairs of factors as above outlined.

During the war, L. and A. Hirschfeld (1919), working in Serbia, made many thousand isoagglutination tests on men of different races. They found that all human races examined present some individuals with A only or B only, but that there was a great preponderance of A individuals in European races, and of B individuals in Asiatic and African races. Englishmen showed 464 A : 102 B (or 4·6 : 1), while natives of India were 273 A : 437 B (or 1 : 1·6). Russians, Turks, Jews, and Arabs showed intermediate proportions, with approximately equal numbers of A and B individuals. The Hirschfelds adopted the view that the human race was originally devoid of either the factor A or B. Then probably in the Central Asian plateau a chemical mutation B arose in prehistoric times, differing in the biochemical structure of its red-blood corpuscles; while in Northern or Central Europe the mutation A arose independently. The various mixtures now occurring would then be the result of the subsequent wandering and intermingling of races.

Whether any race still exists which is wholly free from factors A or B is unknown.

The natives of India, who are generally regarded as anthropologically nearest to Europeans, are found to be most different from them in blood properties. This, of course, may merely mean that the mutations leading to these blood differences have occurred more recently than the separation of the Indian from the European ancestral stock. If, as is generally supposed, these blood differences are of no advantage or disadvantage to man, their distribution should form an interesting study in the spread of an innocuous character in the population of a species. In general, the distribution of A and B was found to correspond with the geographical position of the race. Siberians were found to have the same proportion of B individuals as the natives of Madagascar. Disregarding the frequency of individuals in Group I (having both A and B) and Group IV (having neither), the Hirschfelds determined racial indices on the basis of the relative frequency of A and B individuals. If A was more than twice as frequent as B the index exceeded 2 and the race was assigned to the European type. Similarly an index of less than 1 was found in the Asian-African type, and an index between 1 and 2 was placed in an intermediate type.

Learmonth (1920) analysed forty families by determining the isoagglutinins present, and confirmed the finding that two independent factors were concerned in the inheritance. He found all the possible types of matings between Groups except I × I, I × III and III × III. In nine families both parents belonged to Group IV. This, of course, does not mean that the parents were "primitive," because the absence of both factors can always arise through recombination. He points out that in certain cases it is possible by this method to determine the parentage of children, as also does Ottenberg (1921).

A considerable amount of work has since been done, which Ottenberg (1925) has summarized. The various races which have been examined now appear to fall into six types according to the frequency of A and B, but many more observations on different races are still required. In Russia, it appears that A decreases and B increases from north to south. An Indomanchurian type is suggested, to which the European Gypsies, traditionally Asiatic nomads, appear to belong. A "Hunan type" is created, which includes the South Chinese, Japanese, Hungarians, and Roumanian Jews. It has a very high percentage of A individuals, while Group I is lowest of all. The high frequency of A is like the European type and suggests the possible independent origin of this factor through a separate mutation in the Far East, while the low value of Group I is like that of the Manchurians.

Still more recently Bernstein (1925), in a paper with an extensive bibliography of the literature, adds new observations, a review of previous work, and some new ideas. He compares the hypothesis of two independent pairs of factors with a theory of multiple allelomorphism, *i.e.* that the mutations leading to the conditions A and B have taken place in the same locus of a chromosome and not in different

chromosomes. Considering that A and B are so similar, they are more likely to be multiple allelomorphs than wholly independent factors. In a total of 310 families with 1,350 individuals which have so far been examined, Bernstein finds that the multiple allelomorph hypothesis is contradicted by the reactions of only eleven persons in six families, and these he endeavours to explain away. All the racial results are brought together in the form of a table.

Evidently many more examinations of native races must be made before any definite conclusions can be drawn or before the frequency of blood-types can be evaluated as racial characters. But the work promises to throw important light on the question of racial migrations and intermingling in the past.

In conclusion I am indebted to Professor C. G. Seligman, F.R.S., for several suggestions and criticisms.

LITERATURE CITED.

Baur, E., Fischer, E. and Lenz, F., 1923.—*Menschliche Erblichkeitslehre und Rassenhygiene.* 368 pp. Munich: Lehmann.

Bernstein, F., 1925.—"Zusammende Betrachtungen über die erbliche Blutstrukturen des Menschen," *Zeits. f. Abst. u. Vererb.*, xxxvii, pp. 236–270.

Boas, F., 1912.—*Changes in Bodily Form of Descendants of Immigrants.* 573 pp. Columbia University Press. 1920.—"The Anthropometry of Porto Rico," *American Journ. Phys. Anthrop.*, iii, pp. 247–253.

Bryn, H., 1920.—"Researches into Anthropological Heredity: I. On the Inheritance of Eye-Colour in Man. II. The Genetical Relation of Index Cephalicus," *Hereditas*, i, pp. 186–212.

Castle, W. E., 1922.—"Genetic Studies of Rabbits and Rats," *Carneg. Publ.*, No. 320, 55 pp. 1 pl.

Davenport, C. B., 1917.—"Inheritance of Stature," *Genetics*, ii, pp. 313–389, 19 figs.

Davenport, C. B. and G., 1907.—"Heredity of Eye-Colour in Man," *Science*, xxvi.

von Dungern and Hirschfeld, 1911.—"Ueber gruppenspezifische Strukturen des Blutes," *Zeitschr. Immunol. Forsch.*, viii, pp. 526–562.

Fischer, E., 1913.—*Die Rehobother Bastards und das Bastardierungs Problem beim Menschen.* 327 pp., 19 pls. Jena, 1923.—"Schädelform und Vererbung," *Münch. Mediz. Wochenschr.* No. 50. The latter cited from Hildén.

Frets, G. P., 1917.—"On Mendelian Segregation with the Heredity of Head-form in Man," *Proc. Roy. Acad. Sci.*, xx, pp. 435–865. Amsterdam.

Frets, G. P., 1920.—"De polymerietheorie getoetst aan de erfelijkheid van den hoofdvorm," *Genetica*, ii, pp. 115–136.

Frets, G. P., 1921.—"Heredity of Head-form in Man," *Genetica*, iii, pp. 193–384.

Galton, F., 1889.—*Natural Inheritance.* 259 pp. Macmillan.

Gates, R. Ruggles, 1923.—*Heredity and Eugenics.* 288 pp. London: Constable.

Haddon, A. C., 1924.—*The Races of Man.* 184 pp. Cambridge Press.

Haecker, V., 1918.—"Die entwicklungsgeschichtliche Vererbungsregel in der Völkerkunde," *Zeits. f. Abst. u. Vererb.*, xix, pp. 73–78.

Hagen, B., 1906.—*Kopf und Gesichtstypen ostasiatischer und melanesischer Völker.* Stuttgart. Cited from Hildén.

Hauschild, M. W., 1921.—"Die Göttinger Gräberschädel." *Zeitsch. f. Morph. u. Anthrop.*, xxi, pp. 365–438.

Hildén, Kaarlo, 1925.—"Zur Kenntnis der menschlichen Kopfform in genetischer Hinsicht," *Hereditas*, vi, pp. 127–146.

Hirschfeld, L. and H., 1919.—"Serological differences between the blood of different races," *Lancet*, 1919, ii, pp. 675–679.

Hurst, C. C., 1908.—"On the Inheritance of Eye-Colour in Man," *Proc. Roy. Soc.*, B. 80, pp. 85–96.

Jones, F. Wood, and Campbell, T. D., 1925.—"Anthropometric and descriptive observations on some South Australian aboriginals, with a summary of previously recorded anthropometric data," *Trans. Roy. Soc. S. Australia*, xlviii, pp. 303–312, 2 pls.

Keith, Sir A., 1920.—"The Differentiation of Mankind into Racial Types," *Rept. Brit. Ass.*, 1920, pp. 275–281.

Kirkconnell, W., 1925.—"Mendelism and cephalic index," *Amer. Journ. Phys. Anthrop.*, vii, pp. 443–444.

Learmonth, J. R., 1920.—"The inheritance of specific iso-agglutinins in human blood," *Journ. Genetics*, x, pp. 141–148.

Ottenberg, Reuben, 1921.—"Hereditary blood qualities. Medico-legal application of human blood-grouping," *Journ. Immunol*, vi, pp. 363–385.

Ottenberg, Reuben, 1925.—"A classification of human races based on geographic distribution of the blood groups," *Journ. Amer. Med. Assoc.*, lxxxiv, pp. 1393–1395.

Punnett, R. C., and Bailey, P. G., 1914.—"On Inheritance of Weight in Poultry," *Journ. Genetics*, iv, pp. 23–29, 3 figs., 1 pl. 1918.—"Genetic Studies in Rabbits. I. On the Inheritance of Weight," *Journ. Genetics*, viii, pp. 1–25, 12 figs.

Reid, R. W., and Mulligan, John H., 1925.—"Relation between stature, head length and head breadth of 847 natives of the North-East of Scotland," *Journ. Roy. Anthrop. Inst.*, liv, pp. 287–299.

Ruhnau, K., 1925.—"Einige anthropologische Angaben über die Bevölkerung der ostfriesischen Insel Spiekeroog," *Arch. f. Rass. u. Gesells.-Biol.*, xvi, pp. 378–381.

Schreiner, Alette, 1924.—"Zur Erblichkeit der Kopfform," *Genetica*, v, pp. 385–454.

Sumner, F. B., 1924.—"The stability of sub-specific characters under changed conditions of environment," *Amer. Naturalist*, lviii, pp. 481–505.

Wright, S., 1918.—"On the Nature of Size-Factors," *Genetics*, iii, pp. 367–374.

MISCELLANEA.

PROCEEDINGS OF THE ROYAL ANTHROPOLOGICAL INSTITUTE, 1925.

January 6th, 1925.

Ordinary Meeting at 50, Great Russell Street.

Prof. C. G. SELIGMAN, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Dr. F. C. SHRUBSALL read his paper on "Indians, White and Piebald," illustrated by lantern slides.

The paper was discussed by Prof. RUGGLES GATES, Dr. STANNUS, Mrs. AITKEN, Mrs. SCORESBY ROUTLEDGE and the PRESIDENT, and Dr. SHRUBSALL replied.

The PRESIDENT then read his paper on "Dwarfs in Early China," illustrated by lantern slides.

The paper was discussed by Dr. STANNUS, Miss MURRAY and Dr. EDITH GUEST, and Prof. SELIGMAN replied.

A hearty vote of thanks was accorded to Dr. SHRUBSALL and Prof. SELIGMAN for their interesting papers, and the Institute adjourned till January 27th.

January 27th, 1925.

Annual Meeting. (See p. 1.)

February 10th, 1925.

Ordinary Meeting at the London School of Economics, Houghton Street.

Prof. C. G. SELIGMAN, President, in the Chair.

Mr. J. REID MOIR read his paper on "Further Discoveries of Early Chellean Flint Implements in the Cromer Forest-Bed, Norfolk," illustrated by lantern slides.

The paper was discussed by Mr. HAZZLEDINE WARREN, Dr. BARNES and the PRESIDENT, and Mr. REID MOIR replied.

A hearty vote of thanks was accorded to Mr. REID MOIR for his interesting paper, and the Institute adjourned till February 24th.

February 24th, 1925.

Ordinary Meeting at the London School of Economics.

Mr. H. J. E. Peake, Vice-President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced: Dr. Morris Ginsberg, Mr. Edgar Harrison and Rev. W. C. Piercy.

Mr. L. H. Dudley Buxton read his paper on "The Stoney Indians of the Bow River, Alberta," illustrated by lantern slides.

The paper was discussed by Dr. Shrubsall, Mrs. Aitken and Mr. Peake, and Mr. Buxton replied.

A hearty vote of thanks was accorded to Mr. Buxton for his interesting paper, and the Institute adjourned till March 10th.

March 10th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. Seligman, President, in the Chair.

Mr. A. E. Cadell read his paper on "The Customs of the Yagba and Neighbouring Tribes of Nigeria," and Mr. H. P. Fitzgerald Marriott his paper on "The Carthaginians in West Africa and the Nmoli Statuettes."

The papers were discussed by Dr. Stannus, Mr. Peake and the President.

A hearty vote of thanks was accorded to Mr. Cadell and Mr. Marriott, and the Institute adjourned till March 24th.

March 24th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Capt. T. A. Joyce, Vice-President, in the Chair.

The election of the following as Ordinary Fellows of the Institute was announced: Mr. A. E. Cadell, Dr. Good, Mr. E. F. B. Linden, Mrs. Stan Harding, Rev. E. A. Shattock and Mr. P. Yetts.

Sir Aurel Stein, K.C.I.E., read his paper on "Innermost Asia: its Geography as a Factor in History," illustrated by lantern slides.

The paper was discussed by Sir George Macartney, Mr. R. Hobson, Mr. Peake and Mr. Burkitt, and Sir Aurel Stein replied.

A hearty vote of thanks was accorded to Sir Aurel Stein for his valuable and interesting paper and splendid lantern slides, and the Institute adjourned till April 7th.

April 7th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. Peake, Vice-President, in the Chair.

Dr. Stannus gave his lecture on "Some Types of Natives from Nyasaland, Normal and Abnormal," illustrated by lantern slides.

The paper was discussed by Mrs. Toye, Dr. Rushton Parker, Rev. W. Piercey and Miss Durham, and Dr. Stannus replied.

A hearty vote of thanks was accorded to Dr. Stannus for his interesting paper, and the Institute adjourned till April 21st.

April 21st, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. Seligman, President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced: Mr. E. C. Baker, Mr. H. Havelock Ellis, Mrs. K. Ginnett Gatty, Mr. Roger Goodland, Mr. C. B. Humphreys, Mr. Charles F. Jackson, Mr. A. B. Morgan, Sir Pyers Mostyn, Mr. Leonard Munn, Mr. Michael Terry.

Mr. A. Leslie Armstrong read his paper on "Recent Excavations on Palæolithic Sites at Cresswell Crags, Derbyshire," illustrated by lantern slides and exhibits.

The paper was discussed by Prof. Sollas, Miss Garrod, Mr. Garfitt, Mr. Balfour and Mr. Peake, and Mr. Armstrong replied.

A hearty vote of thanks was accorded to Mr. Armstrong for his interesting paper, and the Institute adjourned till May 5th.

May 5th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. Seligman, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. V. Gordon Childe read his paper on "The Lake Dwellings of Europe in the Light of the New Excavations," illustrated by lantern slides.

The paper was discussed by the President, Mr. Peake, Mr. Scoresby Routledge and Miss Durham, and Mr. Childe replied.

A hearty vote of thanks was accorded to Mr. Childe for his valuable and interesting paper, and the Institute adjourned till May 19th.

May 19th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. Seligman, President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced: Rev. T. W. Castle, Mr. A. H. Ogilvie, Mr. A. L. Jupp, Mr. C. W. Shorland, Mrs. Margaret Stevenson, Mr. E. S. Thomas, Mr. M. S. Narayanan and Rt. Rev. Bishop Whitehead.

The President reported that there was a balance of £300 required to clear the Housing Fund.

Dr. W. Rushton Parker generously handed the President a cheque for £100.

Dr. Ruggles Gates read his paper on "Mendelian Inheritance in Man," illustrated by lantern slides.

The paper was discussed by Dr. Hurst, Dr. R. N. Salaman, Dr. Shrubsall, Dr. Stannus and the President, and Dr. Ruggles Gates replied.

A hearty vote of thanks was accorded to the lecturer for his important paper, and the Institute adjourned till June 9th.

June 9th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. Peake, Vice-President, in the Chair.

The minutes of the last meeting were read and confirmed.

Shamanlolma Dr. Jivanji Janshedji Modi read his paper on "The Daily Life of a Parsee of the Seventeenth Century, as referred to in the Persian *Farziat-Nameh*."

The paper was discussed by Mr. Parkyn, Dr. Rushton Parker and Mr. Peake, and Dr. Modi replied.

A hearty vote of thanks was accorded to the lecturer, and the Institute adjourned till June 23rd.

June 23rd, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Dr. F. C. Shrubsall in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced: Lieut.-Col. Sir Armine Dew, K.C.I.E., C.S.I., Mr. E. J. Horniman, Nawab Salar Jung, Mr. M. H. Krishniengar, Mr. Denzil E. Budgett Meakin, Mr. Francis R. Nort, Prof. V. Suk, Major R. S. Wauchope, O.B.E.

Lieut.-Col. J. Cunningham read his paper on "Some Factors in Racial Immunity and Susceptibility to Disease," illustrated by lantern slides.

The paper was discussed by Dr. Shrubsall, Dr. Mackintosh, Col. Gordon, Dr. J. G. Forbes, Miss Durham and Mr. Phillips, and Col. Cunningham replied.

A hearty vote of thanks was accorded to Lieut.-Col. Cunningham for his very interesting paper, and the Institute adjourned till the autumn.

September 29th, 1925.

Special Meeting at 52, Upper Bedford Place.

Prof. Sir Arthur Keith, Past President, in the Chair.

Dr. Ales Hrdlička gave his lecture on "Rhodesian Man," illustrated by exhibits.

The lecture was discussed by Dr. HADDON, Sir ARTHUR KEITH, Mr. PYCRAFT, Dr. SHRUBSALL, Mr. SEFTON JONES and Mr. HOPWOOD, and Dr. HRDLIČKA replied.

A hearty vote of thanks was accorded to Dr. HRDLICKA for his valuable and interesting contribution, and the Institute adjourned till October 6th.

October 6th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. PEAKE, Vice-President, in the Chair.

The minutes of the last meeting were read and confirmed.

Dr. GERA ROHEIM read his paper on "Hungarian Calendar Customs," illustrated by lantern slides.

The paper was discussed by Mr. FLÜGEL and Mr. PEAKE, and Dr. ROHEIM replied.

A hearty vote of thanks was accorded to Dr. ROHEIM for his interesting paper, and the Institute adjourned till October 13th.

October 13th, 1925.

Special Meeting at 52, Upper Bedford Place.

Prof. C. G. SELIGMAN, President, in the Chair.

Mr. TURVILLE PETRE read his paper on "Early Man in Palestine," illustrated by lantern slides and exhibits. Prof. Sir ARTHUR KEITH gave a detailed report of the results of his study of the Galilean Skull, illustrated by lantern slides. Sir W. BOYD DAWKINS gave a short report on his examination of the bones found in the cave.

The paper was discussed by Mr. BURKITT, Dr. LE GROS CLARKE, Mr. WOOLLARD and the PRESIDENT.

A hearty vote of thanks was accorded to Mr. TURVILLE PETRE, Sir ARTHUR KEITH and Sir W. BOYD DAWKINS for their important and interesting communications, and the Institute adjourned till October 20th.

October 20th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. SELIGMAN, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Miss W. S. BLACKMAN read her paper on "The Customs of the Modern Peasant Population in Egypt," illustrated by lantern slides and exhibits.

The paper was discussed by Miss MURRAY, Prof. MYRES, Mr. HORNBLOWER, Mlle. HOMBURGER and the PRESIDENT, and Miss BLACKMAN replied.

A hearty vote of thanks was accorded to Miss BLACKMAN for her interesting paper, and the Institute adjourned till November 10th.

November 10th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. SELIGMAN, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. J. P. T. BURCHELL read his paper on "The Shellmound Industry of Denmark, as represented at Lower Halston," illustrated by lantern slides and exhibits.

The paper was discussed by Mr. PEAKE, Mr. CHILDE, Mr. HAZZLEDINE WARREN and the PRESIDENT, and Mr. BURCHELL replied.

A hearty vote of thanks was accorded to Mr. BURCHELL for his interesting paper, and the Institute adjourned till November 24th.[1]

December 1st, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Prof. C. G. SELIGMAN, President, in the Chair.

The minutes of the last meeting were read and confirmed.

M. Z. LE ROUZIC read his paper on "Les Monuments Megalithiques du Morbihan : leur Définition, leur Déstination et leur Age d'après les dernière Découvertes aux Environs de Carnac," illustrated by lantern slides.

The paper was discussed by Mr. GORDON CHILDE, Mr. PEAKE, Mr. FORD, Mr. GARFITT and Mr. PERRY, and M. LE ROUZIC replied.

A hearty vote of thanks was accorded to M. LE ROUZIC for his valuable and interesting paper, and the Institute adjourned till December 15th.

December 15th, 1925.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. BALFOUR, Past President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced : Mr. John C. Abraham, Mr. Alexander Keiller, Mrs. Alexander Keiller, Mr. Ivor Gwyne Jones, Mr. N. J. Brooke, Mr. Leo Austin, Dr. H. R. Hall, Mr. W. B. Bithrey, Dr. Heinrich Krause, Dr. Milciades Alijo Vignati and Mr. Robert S. Newall.

Capt. GEORGE PITT-RIVERS read his paper on "The Inhabitants of Aua Island," illustrated by lantern slides.

The paper was discussed by Mr. BALFOUR, Dr. MALINOWSKI, Dr. HARRISON, Mr. FIRTH, Capt. FULLER, Mr. RAY, Mr. BRAUNHOLTZ, Mrs. AITKEN and Mr. BEASLEY, and Capt. PITT-RIVERS replied.

A hearty vote of thanks was accorded to Capt. PITT-RIVERS for his valuable and interesting paper and splendid slides, and the Institute adjourned till January 5th, 1926.

[1] Huxley Lecture.

Some Little-known Tribes of the Southern Sudan.

Addenda et Corrigenda to the Presidential Address by Prof. C. G. Seligman (JOURNAL, *Part I*, 1925, *pp.* 15–36).

SOME time ago I sent Mr. J. H. Driberg a transcript of much of my Sudan material and asked him, if possible, to obtain additional information. I received an answer from him after the publication of my Address, and, so far as matters dealt with therein are concerned, it seems worth while to publish immediately the following notes incorporating his additions and corrections, for which I must thank him most sincerely :—

Rainstones (p. 22). Mr. Driberg writes that rainstones do not occur among the Lango of Uganda, Jaluo, Jopaluo, Alur, and that the Topotha (Turkana group) have no rainstones. This further defines the rainstone area and seems to bear out the suggestion that the western influence crossed the Nile in the neighbourhood of the true Bari. I have, however, heard of rainstones among the Turkana ; concerning this Mr. Driberg writes : "It is said that one Turkana rainmaker has rainstones, but this is doubtful."

Cultural drift (p. 25). "Western drift" ; this sentence is ambiguous—the drift is towards the east, *i.e.* of the westerners eastwards.

Bari chiefs (p. 26, f.n.). For *lugula* read *lugala* (*gala* = foreigner).

Lotuko clans (p. 27). Mr. Driberg points out that *kang* is not the correct word for clan, but means "family." "Clan is apparently *nemanit* or *nawoyo*. . . . As far as I can determine *nawoyo* is more intimate than *nemanit*, and really only refers to relationship up to three generations. In this case *nemanit* is presumably the correct word for a clan . . . your *kang* may be either *nekhang* village (which is the same as Acholi *gang*, as *kh* = *g*) or *nekhang* family. I should say rather that *nekhang* is the family enclosure inside a village."

Lotuko totems (p. 27). Crocodile and *neguru* of Igago clan. "Most *khobu*, but not all, belong to the Igago clan, and when a *khobu* dies he becomes his clan totem [*i.e.* in the case of the Igago, the crocodile]. The insect *neguru* (a species of aphis) is said to swarm instantly over the grave of a *khobu*. Neither a *khobu* nor anyone else ever becomes a *neguru* at death. It is an insect always associated with a *khobu*, which is natural, as the *khobu* is concerned with crops, whose greatest pest is the aphis." I give Mr. Driberg's words, though further inquiry seems necessary to make clear the philosophy of the connection of *khobu* and *neguru*.

Nametere (p. 29). "The *nametere* is such as you describe. It is definitely made to simulate the dead man that he may be thought to be present at the funeral dance." The dance is not round the *nametere*, "which is placed on the ground to the side." Mr. Driberg did not hear of its being burnt, but "after the dance it is taken and thrown away into the bush, where it is vigorously speared."

Natibo shrine (p. 31). Mr. Driberg was given the word *natifini*. He suggests a dialectical difference. "It is, as you say, made of stone slabs, but sometimes a conical roof of grass is built over it as well. Sacrifices are made here, and chickens are waved ceremonially." (The word used for this process among the Shilluk-

speaking Lango of Uganda is *buko*, cf. Driberg, *The Lango*, p. 373.) There are annual sacrifices of goats at the *natifini* to prevent sickness and to preserve health. At the beginning of cultivation a large pot of beer is put close to the *natifini* and an old woman drinks it, but leaves a little at the bottom for the *nachyen* [spirits of the dead]. When it is dry the pot is taken into the house, but it is not used for any other purpose. It is only kept for the beer of the *natifini*.

With regard to communal sacrifice Mr. Driberg writes: "In addition to individual shrines there is a special communal *natifini* at the entrance to a village, reserved for agricultural purposes. To prepare for cultivation the *monyokodali* [master of the club-house] sacrifices a goat to this communal *natifini*. They all then proceed into the bush, and the *monyokoferaji* takes his firesticks and lights a special fire, and a ceremonial pipe of tobacco is smoked. An animal (wild) is killed and is taken to the village, where it is eaten next day, together with contributions of grain. On the third day they proceed to the cultivation." The *monyokoferaji* is the maker of ceremonial fire and owner of the firesticks with which this is made. I might add that a newly kindled fire plays a considerable part in the ceremonies of the Lotuko-speaking tribes, thus among the Lotuko the ceremonial kindling of the new fire and its carriage to the drum-houses appears to be the central rite of initiation.

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1918. Hrdlička, Dr. Aleš. U.S. National Museum, Smithsonian Institution, Washington, D.C.

1892. Lacassagne, Prof. 1 Place Laspail, Lyons, France.

1886. Manouvrier, Dr. L. 15 Rue de l'École de Médecine, Paris.

1925. Mauss, M. Marcel. 2 Rue Bruller, Paris XIVe.

1923. Nordenskiold, Baron Erland. Göteborg Museum, Göteborg, Sweden.

1922. Obermaier, Prof. H. Calle Alcala 143/I, Madrid IX.

1923. Orsi, Dr. Paolo. The Museum, Syracuse, Sicily.

1910. Pittard, Prof. Eugene. Musée Ethnographique, Villa Mon Répos, Geneva.

1903. Reinach, Dr. S. Musée des Antiquités, St. Germain-en-Laye, Paris.

1921. Reisner, Prof. G. A. Harvard University, Cambridge, Mass.

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1918. Rutot, Dr. Aimé. Musée Royal d'Histoire Naturelle, Bruxelles, 189 Rue de la Loi, Bruxelles.

1924. Sarasin, Dr. Fritz. Museum für Völkerkunde, Basel.

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1921. Verneau, Prof. Réné. Museum d'Histoire Naturelle, Rue du Buffon 61, Paris; 72 Avenue d'Orleans, Paris 14e.

1919. Zammitt, Prof. T., C.M.G., M.D., Hon. D.Litt., The Museum, Malta.

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Year of Election.

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Year of Election.

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Year of Election.

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1925 Mathews, H. F., Esq., c/o *Secretary, Southern Provinces, Lagos, Nigeria.*

Year of Election.

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1913 McLean, W., Esq., M.B., *Seaforth Sanatorium, Conon Bridge, Ross-shire.*

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Year of Election.

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1924 Perram, Charles H., Esq., M.D., 55 *Bromham Road, Bedford.*

1923 Perry, W. J., Esq., *University College, Gower Street, W.C.* 1. (§)

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Year of Election.

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1907 Pycraft, W. P., Esq., A.L.S., *British Museum (Natural History), Cromwell Road, S.W.* 7. (§)

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1903 Read, Carveth, Esq., M.A., Emeritus Professor of Philosophy and Comparative Psychology, University of London; *Woodlane, Birmingham Road, Solihull, Warwickshire.* (*¶)

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1886 Reid, Robert William, Esq., M.D., Professor of Anatomy in the University of Aberdeen, 37 *Albyn Place, Aberdeen.* (¶§)

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1914 Richardson, Hubert N. B., Esq., B.A., F.C.S., 16 *Merchiston Avenue, Edinburgh.*

1901 Ridgeway, Sir W., M.A., Sc.D., F.B.A., Hon. LL.D., Hon. Litt.D., Past-President (1908–10), Disney Professor of Archæology and Brereton Reader in Classics in the University of Cambridge, Hon. Member Anthrop. Soc. Brussels, Hon. Member Deutsche Gesellschaft für Anthropologie; *Caius College, Cambridge; Fen Ditton, Cambridge.* (¶§)

1925 Riley, Alec, Esq., c/o *Midland Bank, Ltd.*, 147 *Chester Road, Manchester.*

1924 Riley, Rev. E. Baxter, *Daru, Papua, via Thursday Island.*

1920 Ritchie, J., Esq., *The Museum, Perth.*

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1920 Ritchie, W. W., Esq., c/o *Hongkong & Shanghai Bank*, 9 *Gracechurch Street, E.C.* 3.

1918 Robarts, Nathaniel F., Esq., 23 *Olive Grove, South Norwood, S.E.* 25.

1922 Roberts, K. Stanley, Esq., *Royal Societies Club, St. James's Street, S.W.* 1.

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1920 Rogers, Frank H., Esq., B.A., 53 *Oxford Road, Altrincham; Assist. District Commissioner, Hocina, Uganda.*

1924 Róheim, Dr. Geza, *VI Hermina ut* 35A, *Budapest.* (¶)

1912 Roscoe, Rev. J., *Ovington Rectory, Watton, Norfolk.*

1901 Rose, H. A., Esq., *Milton House, La Haule, Jersey, Chan. Is.* (¶)

1911 Rose, H. J., Esq., M.A., Professor of Latin, *University College of Wales, Aberystwyth.* (¶)

1924 Routledge, Mrs. K. M. Scoresby, 4 *Hyde Park Gardens, W.* 2. (¶)

1904 Routledge, W. Scoresby, Esq., M.A., 4 *Hyde Park Gardens, W.* 2. (¶)

1923 Roxby, Prof. Percy M., *School of Geography*, 10 *Abercromby Square, Liverpool.*

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1905 Salaman, C., Esq., *Treborough Lodge, Roadwater, Somerset.*

1919 Salaman, M. H., Esq., *Rutmans, Oakwood Hill, near Dorking.*

1921 Salaman, Redcliffe N., Esq., *Homestall, Barley, Royston, Herts.*

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1919 Sanderson, G. M., Esq., M.R.C.S., c/o *P.M.O., Zomba, Nyasaland; Broxbourne, Parkstone, Dorset.* (¶)

1886 Sarawak, H.H. the Dowager Ranee of, *Grey Friars, Ascot.*

1876 Sayce, Rev. A. H., M.A., LL.D., Professor of Assyriology in the University of Oxford, *Queen's College, Oxford.* (*¶)

1921 Sayce, R. Urwick, Esq., *Natal University College, Pietermaritzburg, Natal.*

1921 Schwartz, John, Esq., *Broomwood, Sevenoaks, Kent.*

1921 Scott, G. C., Esq., B.A., *S.P.S., El Fasper, Sudan.*

1925 Scott, George R., Esq., F.Z.S., *Mayfield House, Mirfield, Yorks.*

1926 Scupham, Major, W. E. H., *Little Shelford, Cambridgeshire.*

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1923 Seligman, Mrs. B. Z., *Court Leys, Toot Baldon, Oxford.* (§)

Year of Election.

1900 Seligman, Charles G., Esq., M.D., F.R.S., PAST PRESIDENT (1923–1925), Professor of Ethnology, University of London, *Court Leys, Toot Baldon, Oxford.* (¶§)

1924 Sennett, Richard H., Esq., F.G.S., 58 *Fitzjames Avenue, W.* 14.

1924 Service, F. Stanley, Esq., 5 *Prince Arthur Road, Hampstead, N.W.* 3.

1885 Seton-Karr, H. W., Esq., 8 *St. Paul's Mansions, Hammersmith.* (¶)

1908 Shakespear, Col. J., C.M.G., C.I.E., D.S.O., 414 *Clive Court, Maida Vale, W.* 9. (¶)

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1898 Shrubsall, Frank Charles, Esq., M.A., M.D., TREASURER, 15 *Well Walk, Hampstead, N.W.* 2. (*¶§)

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1907 Smith, Col. W. Ramsay, D.Sc., M.D., C.M., F.R.S. (Edin.), Permanent Head, Health Department, *Belair, South Australia.*

1905 Smurthwaite, T. E., Esq., 134 *Mortimer Road, Kensal Rise, N.W.* 10.

1910 Sollas, W. J., Esq., M.A., Sc.D., LL.D., F.R.S., Professor of Geology in the University of Oxford, 84 *Banbury Road, Oxford.* (¶)

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1893 Somerville, Vice-Admiral Boyle, T., C.M.G., R.N. (retired), *The Point House, Castletownsend, County Cork, Ireland.* (¶)

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1908 Stannus, H. S., Esq., M.D., 57 *Russell Square, W.C.* 1. (§)

1913 Stefánsson, V., Esq., *American Geographical Society, Broadway, at* 156*th Street, New York City.*

1880 Stephens, Henry Charles, Esq., F.L.S., F.G.S., F.C.S., *Cholderton, Salisbury.* (*)

1925 Stevenson, Mrs. Sinclair, c/o *Church House, Belfast, Ireland.*

Year of Election.

1924 Stocks, Mrs. C. A. de Beauvoir, *Ladies' Carlton Club*, 8 *Chesterfield Gardens, W.* 1.

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1922 Stooke, G. Beresford, Esq., *Assist. Dist. Commissioner*, c/o *The Secretariat, Nairobi, Kenya.*

1883 Streeter, E. W., Esq., F.R.G.S., F.Z.S.

1903 Strong, W. M., Esq., M.D., B.C., *Port Moresby, Papua, via Australia.* (¶)

1923 Suffern, Canning, Esq., M.B., *Uphanger, Shepherd's Lane, Chorley Wood, Herts.*

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1925 Swayne, J. C., Esq., *Miri, Sarawak, via Singapore.*

1902 Sykes, Brig.-Gen. Sir P. Molesworth, K.C.I.E., C.M.G., *Riant-Chateau, Territet, Switzerland* (Oct.–July); *Villa Jeanne, St. Brieuc, Ille-et-Vilaine, France* (Aug.–Sept.). (*¶)

1899 Tabor, Charles James, Esq., *White House, Knott's Green, Leyton, Essex.*

1915 Tagart, E. S. B., Esq., *Livingstone, Northern Rhodesia, via Cape Town.*

1905 Talbot, P. A., Esq., *Bishopton, Stratford-on-Avon.*

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1922 Taylor, Guy A., Esq., M.A., B.Sc. (Cantab), Native Development, *B.O. Box* 393, *Salisbury, S. Rhodesia.*

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1879 Temple, Lieut.-Col. Sir R. C., Bart., C.I.E., *Room* 53, *India Office, S.W* 1. (¶)

1925 Terry, Michael, Esq., c/o *Messrs. Herriott & Herriott*, 207 *Elizabeth Street, Sydney, N.S.W.*

1924 Thakore, M.D., Esq., 6 *South Parade, Doncaster.*

1881 Thane, Sir George Dancer, *St. John's Road, Harrow.* (*¶)

1924 Thein, M. Myint, Esq., B.A., 9 *Pagoda Road, Cantoonments, Rangoon, Burma.*

1925 Thomas, Ernest S., Esq., *Pitt Rivers Museum, Oxford.*

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1884 Thomas, Oldfield, Esq., F.R.S., F.Z.S., 15 *St. Petersburg Place, Bayswater Hill, W.* (*¶)

1920 Thomas, T. Gordon, Esq., 12 *Avenue Road, King's Lynn.*

Year of Election.

1914 Thompson, W. B., Esq., *Warren Bank, Brampton, Cumberland.*

1890 Thomson, Arthur, Esq., M.A., M.B., Professor of Human Anatomy in the University of Oxford, *The Museum, Oxford.* (¶)

1882 Thurn, Sir Everard F. im, K.C.M.G., K.B.E., C.B., PAST PRESIDENT (1919–20), *Cockenzie House, Prestonpans, East Lothian.* (¶§)

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1896 Tins, Lieut.-Col. H. W. Marett, O.B.E., M.A., M.D., *Newtown House, St. Aubins, Jersey.*

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1921 Tomblings, D. G., Esq., *Makerere, Kampala, Uganda.*

1904 Torday, E., Esq., 17 *The Grove, Boltons, S.W.* 10. (¶)

1925 Toye, Mrs. A. H., 33 *Tedworth Square, S.W.* 3.

1922 Toye, E. Geoffrey, Esq., 61 *York Terrace, Regent's Park, N.W.* 1.

1912 Tozzer, A. M., Esq., Ph.D., *Peabody Museum, Harvard University, Cambridge, Mass., U.S.A.* (*)

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1924 Turville-Petre, Francis, Esq., *Bosworth Hall, Rugby.*

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1919 Wallis, B. C., Esq., 1 *Elmwood Crescent, Hay Lane, Kingsbury, N.W.* 9.

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1922 Ward, Edwin, Esq., F.S.A. (Scot.), Keeper of Art and Ethnographical Department, *Royal Scottish Museum, Edinburgh.*

1924 Ward, John S. M., Esq., 39 *St. James's Street, S.W.* 1.

Year of Election.

1902 Warren, S. Hazzledine, Esq., F.G.S., *Sherwood, Loughton, Essex.* (¶§)

1913 Watkins, Lieut.-Col. O. F., *Native Affairs Dept., Nairobi, East Africa.*

1925 Wauchope, Major R. S., *Survey of India, Bangalore, S. India.*

1923 Webster, Prof. Hutton, *College of Arts and Sciences, The University of Nebraska, Lincoln, Nebraska, U.S.A.* (*).

1924 Wedgewood, Miss Camilla H., 4 *Storey's Way, Cambridge.*

1924 Welch, Francis B., Esq., *British School of Archæology, Athens, Greece.*

1907 Welch, H. J., Esq., 9 *Homefield Road, Bromley, Kent.*

1907 Wellcome, Henry S., *Snow Hill Buildings, Holborn, E.C.* 1.

1924 Werner, Miss Alice, Professor of Swahili, *School of Oriental Studies, Finsbury Circus, E.C.* 4.

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1921 Wheeler, R. E. Mortimer, Esq., D.Litt., *National Museum of Wales, Cardiff.*

1907 White, James Martin, Esq., 1 *Cumberland Place, Regent's Park, N.W.* 1.

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1921 Williams, F. E., Esq., *High Street, Unley Park, S. Australia.*

1921 Williams, O. Guise, Esq., *Maswa Mwanza District, Tanganyika Territory, E. Africa.*

1910 Williams, S. H., Esq., L.D.S., R.C.S. (Eng.), F.S.A., 32 *Warrior Square, St. Leonards-on-Sea.*

1909 Williamson, R. W., Esq., M.Sc., VICE-PRESIDENT, *The Copse, Brook, near Witley, Surrey.* (¶§)

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1915 Brighton Public Library, Museums and Fine Art Galleries, *Brighton.*

1921 Spelæological Society, *University of Bristol.*

1900 The Oxford University Anthropological Society, c/o *R. R. Marett, Esq., M.A., Exeter College, Oxford.*

1912 The London School of Economics, *Clare Market, W.C.*

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J or **M** after current periodicals indicates an exchange for the *Journal* or *Man* respectively.

1. Abhandlungen der Naturhistorischen Gesellschaft zu Nürnberg, 1898 (in progress), **M.**
2. Acta Academiæ Aboensis, Humaniora, Abo, Finland, 1920 (in progress), **M.**
3. Acta et Commentationes Universitatis Dorpatensis, 1901 (in progress), **J.**
4. Actas y Memorias Sociedad Española de Antropologia, Madrid, 1921 (in progress), **J.**
5. American Anthropologist, Washington, 1889 (in progress), **J.**
6. American Antiquarian, Salem, 1881–1913.
7. American Archæology, University of California, Berkeley (in progress), **J.**
8. American Indian Magazine, Washington, 1913–1919.
9. American Journal of Physical Anthropology, Washington, 1918 (in progress), **J.**
10. American Journal of Psychology, Worcester, 1898 (in progress).
11. Amtliche Berichte Westpreussischen Provinzialmuseums, Danzig, 1901–16.
12. Anales del Museo Nacional de Arqueologia, Mexico, 1904–14.
13. Anals de l'Institut d'Orientacio Professional, Barcelona, 1920.
14. Ancient Egypt, London, 1914 (in progress).
15. Annales de la Société royale d'Archéologie de Bruxelles, 1882.
16. Annales du Musée Guimet, Paris, 1922 (in progress), **J.**
17. Annales du Musée du Congo Belge, Renaix.
18. Annals of Archæology and Anthropology, Liverpool, 1908 (in progress), **J.**

18A. Annals of Eugenics, London, 1925 (in progress).

19. Annals of the Bhandaker Institute, 1918 (in progress).
20. Annals of the Natal Museum, London, 1906 (in progress), **M.**

20A. Année sociologique, L', Paris 1896 (in progress), **J.**

21. Annuaire de la Société d'Archéologie de Bruxelles, 1890–1914.
22. Annual of the British School at Athens, 1894 (in progress).
23. Annual Report of the Boston Public Library (in progress).
24. Annual Report of the United States National Museum, Washington, 1897 (in progress).
25. Annual Report, Bureau of American Anthropology, Washington, 1879 (in progress).
26. Annual Report, Papua, Melbourne.
27. Annual of the American School of Oriental Research, Philadelphia, **M.**
28. Annual of the American School of Oriental Research in Jerusalem, New Haven, 1919 (in progress).
29. Anthropologia Hungarica, Buda-Pest, 1924 (in progress), **M.**

30. Anthropological Papers of the American Museum of Natural History, New York, 1908 (in progress), **M.**
31. Anthropological Publications of the University of Pennsylvania, Philadelphia, 1909 (in progress), **J.**
32. Anthropologie, L', Paris, 1890 (in progress), **J.**
33. Anthropologie, Prague (Czech), 1923 (in progress), **M.**
34. Anthropologischer Anzeiger, Stuttgart, 1924 (in progress), **M.**
35. Anthropology Report, Papua, Port Moresby (in progress).
36. Anthropos, Mödling, Austria, 1906 (in progress), **M.**
37. Antikvarisk Tidskrift för Sverige, Stockholm, 1864 (in progress), **J.**
38. Antiquaries Journal, The, London, 1921 (in progress), **M.**
39. Anzeiger für schweizerische Altertumskunde, Zurich, 1900 (in progress).
40. Archæologia, London, 1857 (in progress), **J.**
41. Archæological Journal, London, 1845 (in progress), **J.**
42. Ἀρχαιολογικὴ Ἐφημερίς, Athens, 1883 (in progress), **J.**
43. Archæological Reports, Toronto (in progress).
44. Archäologische Monographien, K. Vitterhets, Historie och Antikvitets Akademie, Stockholm (in progress).
45. Archeologo Portugues, O, Lisbon, 1895 (in progress), **M.**
46. Archius de l'Institut de Ciencias, Barcelona, 1915 (in progress).
47. Archiv für Anthropologie, Brunswick, 1866 (in progress).
48. Archiv für Religionswissenschaft, Leipzig, 1915 (in progress), **J.**
49. Archiv für Rassenbiologie, 1904–14.
50. Archives suisses d'Anthropologie générale, Lausanne, 1914 (in progress), **M.**
51. Archivio di Antropologia Criminale, Turin, 1883 (in progress), **J.**
52. Archivio per l'Antropologia e Etnologia, Florence, 1871 (in progress), **J.**
53. Archivio de Medicina Legale, Lisbon, 1922–23.
54. Archivos do Museu Nacional de Rio de Janeiro, 1896 (in progress), **J.**
55. Archiwum Nauk Antropologicznych, Lwów (in progress).
56. Arquivo de Anatomia e Antropologia, Lisbon, 1912 (in progress), **M.**
57. Ars Quatuor Coronatorum, Margate (in progress), **J.**
58. Atlantis, London, 1858–60.
59. Atti della Reale Accademia dei Lincei, Rome, 1918 (in progress), **M.**
60. Altschlesien, Breslau, 1922 (in progress), **M.**
60A. Australian Association for the Advancement of Science, 1887 (in progress).
61. Baessler-Archiv, Berlin, 1910–13.
62. Bantu Studies, Johannesburg, 1923 (in progress), **M.**
63. Bergens Museum Arbok, Bergen, 1916 (in progress), **J.**
64. Biblia, Meridin, U.S.A., 1901–05.
65. Bibliotheka Afrikana, Innsbruck, 1924 (in progress), **M.**
66. Bijdragen tot den Taal, Land en Volkskunde, Batavia, 1893 (in progress), **J.**
67. Biometrika, London, 1901 (in progress).
68. Blätter für deutsche Vorgeschichte, Leipzig, 1925 (in progress).
69. Boletim do Museu Nacional de Rio de Janeiro, 1924 (in progress).

70. Boletim de Museu Nacional de Arqueologia, Mexico, 1911–13.
71. Boletim de la Sociedade de Geografia, Lisbon, 1880 (in progress).
72. Boletin de l'Accademia Nacional de Historia, Quito, 1922 (in progress), **J.**
73. Boletin de l'Accademia Nacional de Ciencias, Cordoba, 1889–1903.
74. Boletin de la Sociedad Mexicana de Geografia y Estadistica, Mexico, 1912 (in progress).
75. Boletin de la Sociedad de Estudios Vascos, San Sebastian, 1921 (in progress), **M.**
76. Bollettino di Paletnologia Italiana, Parma, 1875 (in progress).
77. Bollettino della R. Soc. Geografica Italiana, Rome, 1916 (in progress), **M.**
78. Bollettino della Soc. Piemontese di Bella Arte, Turin, 1918 (in progress), **M.**
79. British Journal of Psychology, London, 1904 (in progress), **J.**
80. British Medical Journal, London (in progress), **J.**
81. Buletinul Societatu R. Romane de Geographie, Bucarest, 1915–21, **M.**
82. Bulletin of the School of Oriental Studies, London, 1921 (in progress), **M.**
83. Bulletin of the Board of Celtic Studies, London, 1922 (in progress).
84. Bulletin, Dominion Museum, Wellington, 1904 (in progress), **J.**
85. Bulletin of the Bureau of American Ethnology, Washington, 1904 (in progress).
86. Bulletin of the United States National Museum, Washington (in progress).
88. Bulletin de la Société préhistorique française, Paris 1908 (in progress), **M.**
89. Bulletin de la Statistique générale de la France, Paris, 1911 (in progress).
90. Bulletin de l'Institut de Sociologie Solvay, Paris, 1894–1914, **M.** Continued as Revue.
91. Bulletin de la Société r. belge de Géographie, Brussels, 1904 (in progress), **M.**
92. Bulletin de la Société belge d'Études coloniales, Brussels, 1904 (in progress), **M.**
93. Bulletin de la Classe des Sciences, R. Acad. Belge, Brussels (in progress), **J.**
94. Bulletin agricole du Congo belge, Brussels, 1915–17.
95. Bulletin de la Société anthropologique de Lyons, 1881 (in progress), **J.**
96. Bulletin de la Société polymathique de Morbihan, Vannes, 1883 (in progress).
97. Bulletin de la Société de Borda, Dax, 1894–1915, **M.**
98. Bulletin de la Société neuchâteloise de Géographie, Neuchâtel (in progress), **J.**
99. Bulletin de la Société Sultanieh de Géographie, Cairo, 1902 (in progress), **J.**
100. Bulletin de la Comité d'Études historiques, etc., de l'Afrique du Nord, Dakar, 1918 (in progress), **M.**
101. Bulletins et Mémoires de la Société d'Anthropologie de Paris, 1891 (in progress), **J.**
102. Bulletins et Mémoires de la Société d'Anthropologie de Bruxelles, 1882 (in progress), **J.**
103. Bulletin internationale de l'Academie des Sciences, Krakow, 1891 (in progress).
104. Bulletin de la Société impériale des Naturalistes, Moscow, 1868–1914.
- Bulletin, *see also* under Izvestia.
105. Bulletins de la Société des Études océaniennes, Tahiti, 1918 (in progress).

107. Central-Blatt für Anthropologie, Jena, 1896–1910.
108. Ceske Lád, Prague, 1892–94.
109. Ceylon Antiquary and Literary Register, Colombo, 1915 (in progress).
110. Ceylon Journal of Science, Colombo, 1924 (in progress).
111. Church Missionary Review, London, 1901 (in progress), **M.**

112. Columbia University Contributions to Anthropology, New York.
113. Congrès internationales d'Anthropologie et Archéologie préhistorique, Comptes-rendus, various towns, 1868–92, 1906.
114. Congrès internationales des Américanistes, Comptes-Rendus, various centres, 1877 1904, 1910–15, 1924.
115. Congrès préhistoriques français, various towns, 1905–1914.
116. Contributions from the Museum of the American Indian, Heye Foundation, New York, 1913 (in progress), **J.**
117. China Journal of Science and Arts, Shanghai, 1925 (in progress), **M.**
118. Congo, Brussels, 1920 (in progress).
119. Djava, Java, 1921 (in progress).
120. Dominion Museum Monographs, Wellington, 1921 (in progress), **J.**
121. Epigraphia Zeylanica, London (in progress).
122. Epigraphica Indica, Calcutta (in progress).
123. Estudis i Materiales, Barcelona.
124. Ethnographie, L', Paris, 1913–23, continued as Revue d'Ethnographie, etc., q.v.
125. Ethnos, Mexico, 1920 (in progress), **M.**
126. Eugenics Review, London, 1909 (in progress), **M.**
127. Eusko-Folklore, Vitoria, 1921 (in progress).
129. Fataburen, Stockholm, 1906 (in progress), **J.**
130. Field Museum, Anthropological Series, Chicago, 1897 (in progress), **J.**
131. Finskt Museum, Helsingfors, 1903 (in progress), **M.**
132. Folklore Record and Folklore Journal, 1868–89, continued as Folklore, London, 1890 (in progress), **J.**
133. Fornvännen, Stockholm, 1912 (in progress), **M.**
135. Geographical Journal, London, 1831 (in progress), **J.**
136. Géographie, La, Paris, 1921 (in progress), **M.**
137. Globus, Brunswick, 1901–10.
139. Hakluyt Society's Publications, London, 1859 (in progress).
140. Hereditas, Lund, 1920 (in progress), bought.
141. Hessische Blätter für Volkskunde, Giessen, 1905 (in progress), **J.**
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144. Indian Antiquary, Bombay, 1885 (in progress), **J.**
145. Indian Notes and Monographs, Heye Foundation, New York, 1920 (in progress).
146. International Archiv für Ethnographie, Leiden, 1888 (in progress), **J.**
147. International Journal of American Linguistics, New York, 1920 (in progress), purchased.
148. International Journal of Psycho-analysis, London, 1924 (in progress), **M.**
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149. Izvestia Imp. Obschestva Lubitelei 'Estestvoznania, Antropologii, i Etnografii, 1878–1915, Moscow University.

150. Izvestia Imp. Akademii Nauk, St. Petersburg, 1894–1915, continued as Izvestia Rosskoi Akademii Nauk, Leningrad, 1924 (in progress), **J.**

151. Jahresschrift für die Vorgeschichte der sächsisch-thüringischen Länder, Halle, 1901 (in progress), **J.**
152. Jaarboek van de K. Akademie van Wetenschappen, Amsterdam (in progress), **J.**
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197. Journal de Psychologie, Paris, 1920–25.

198. Katalog des ethnographischen Reichsmuseums, Leiden, 1910 (in progress).
199. Knowledge.
200. Kolonial Instituut, Jaarverslag and other publications, Amsterdam, 1914 (in progress), **J.**

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206. Man in India, Ranchi, 1921 (in progress), **M.**
207. Manadsblad, Kung. Vitterhets, Historie och Antikvitets Akademiens, Stockholm, 1872–1905.

208. Mannus, Leipzig, 1919 (in progress).
209. Materjaly antropologiczno-archeologiczne i etnograficzne, Krakow, 1896 (in progress).
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258. Papers of the Peabody Museum, Cambridge, Mass. (in progress).
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260. Petermanns Mitteilungen, Gotha, 1905–14.
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268. Pravek, Kojetin, 1903–11.
269. Proceedings of the Society of Biblical Archæology, 1873–1914, now merged in J.R.A.S.
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290. Quarterly Journal of the Mythic Society, Bangalore, 1920 (in progress), **M.**
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325. Sarawak Museum Journal, 1911–13.
326. Schriften der phys.-ökon. Gesellschaft, Königsburg, 1900–12.
327. Schweizerisches Archiv für Volkskunde, Basel, 1901 (in progress), **M.**
328. Science, 1904–15.
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330. Science Reports of the Imperial Tokoku University, Sendai (in progress).
331. Scientia, Bologna, 1921 (in progress), **M.**
332. Scottish Geographical Magazine, Edinburgh, 1900 (in progress), **J.**
333. Sierra Leone Studies, Freetown, 1919 (in progress).
334. Sitzungsberichte der k.k. Akademie der Wissenschaften in Wien.
335. Sitzungsberichte der naturforschenden Gesellschaft, Dorpat, 1900 (in progress), **J.**
336. Skrifter det Kongl. Nordske Videnskabers Selskabs, Trondheim, 1902 (in progress), **M.**
337. Smithsonian Publications, Washington, 1855 (in progress).
338. Sociological Review, London, 1908 (in progress), **M.**
339. South American Missionary Magazine, London (in progress), **M.**
340. Southern Cross Log, London, 1909 (in progress).
341. Subject Index to Periodicals, London (in progress), **J.**
342. Sudan Notes and Records, Khartoum, 1918 (in progress), **M.**
343. Suomen Muinaismuistoyhdistyksen Aikakauskirja (SMYA), Helsingfors, 1907 (in progress), **J.**
344. Svenska Landesmal, Uppsala, 1896 (in progress), **J.**
345. Swiatowit, Warsaw, 1904–13.

346. Tijdschrift voor indische Taal, Land en Volkskunde, Batavia, 1884 (in progress), **M.**
347. Trabalhos da Sociedade Portuguesa di Antropologia e Etnologia, Porto, 1919 (in progress), **M.**
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360. Ungarische Revue, Buda-Pest, 1888–95.
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364. Urgeschichtlicher Anzeiger, Vienna, 1924 (in progress) **J.**

366. Verhandelingen van het Bat. Genootschap, Batavia, 1892 (in progress).
367. Verhandlungen der naturforschenden Gesellschaft in Basel, 1919 (in progress), **J.**
368. Veröffentlichungen des Museums für Völkerkunde zu Leipzig.
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374. Wiadomosci Archeologiczne, Warsaw, 1920 (in progress), **J.**
375. Wiener Prähistorische Zeitschrift, Vienna, 1914 (in progress), **J.**
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377. Ymer, Stockholm, 1881 (in progress), **J.**

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381. Zeitschrift für Demographie und Statistik der Juden, Berlin, 1905–14.
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